CCD-F501/F555
RMT-502

SERVICE MANUAL

US Model
Canadian Model
CCD-F501
E Model
CCD-F555

Video 8

U MECHANISM

SPECIFICATIONS

System

Video recording system	Rotary two heads, Helical scanning FM system
Audio recording system	Rotary head, FM system
Video signal	NTSC color, EIA standards
Usable cassette	8 mm video format cassette
Tape speed	SP mode: Approx. 1.43 cm (1/16 inch)/sec. LP mode: Approx. 0.72 cm (1/32 inch)/sec. (playback only)
Recording time	SP mode: 2 hours (P6-120)
Playback time	SP mode: 2 hours (P6-120) LP mode: 4 hours (P6-120)
Fast forward/rewind time	Approx. 6 min. 30 sec. (P6-120)
Image device	CCD (Charge Coupled Device)
Viewfinder	Electronic viewfinder (black and white)
Lens	Combined 10 x power zoom lens f=8.5 to 85 mm. (1/3 to 3 1/3 in.) F 1.6 with macro Filter diameter: 46 mm (1 13/16 inches)
Auto focus system	IR
Color temperature	AUTO, HOLD ☆ (indoor) 3,200 K ☀ (outdoor) 5,800 K
Minimum illumination	2 lux
Illumination range	2 lux to 100,000 lux (0.2 to 9294 footcandles)
Recommended illumination	More than 100 lux (9 footcandles)
Aperture correction	Automatic with backlight adjustment

Input and output connector

Video input/output	Phono jack, 1 Vp-p, 75 ohms unbalanced sync negative
Audio input/output	Phono jack (L, R), Input: −7.5 dBs, input impedance more than 47 kilohms Output: −7.5 dBs, (at output impedance 47 kilohms) impedance less than 1 kilohms
RFU DC OUT	Special minijack, 5 V DC
Headphone jack	Minijack, 8-ohm impedance
Remote Ⓛ jack	Stereo mini-minijack
MIC jack	Stereo minijack, −66 dBs, low impedance with 2.5 to 3 V DC output, impedance 6.8 kiohms
Microphone power output jack	Special minijack, 5 V DC

— Continued on next page —

8 VIDEO CAMERA RECORDER

SONY®

MICROFILM

General

Power requirements	On battery mounting surface 6.0 V (battery pack) 7.5 V (AC power adaptor) 9.0 V (alkaline batteries)
Power consumption	6.4 W (camera recording) including the viewfinder
Installation	Vertically, horizontally
Operating temperature	0°C to 40°C (32°F to 104°F)
Storage temperature	-20°C to +60°C (–4°F to +140°F)
Dimensions	Approx. 111 x 140 x 347 mm (w/h/d) ($4^{3}/_{8}$ x $5^{1}/_{2}$ x $13^{3}/_{4}$ in.)
Weight	Approx. 1.3 kg (2 lb 12 oz) excluding the battery and cassette
Microphone	Electret condenser microphone, stereo type

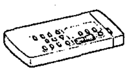
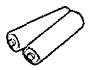
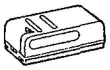
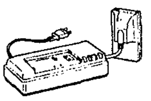
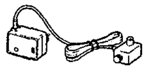
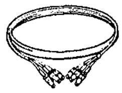
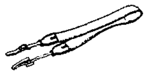
Wireless Remote Commander

Remote control system	Infrared control
Command mode	VTR 2
Power requirements	3 V DC, 2 size AA (R6) batteries
Dimensions	Approx. 57 × 20 × 120 mm (w/h/d) ($2^{1}/_{4}$ × $^{13}/_{16}$ × $4^{3}/_{4}$ inches)
Weight	Approx. 62 g (2 oz) (excluding batteries)

Design and specifications are subject to change without notice.

Checking Supplied Accessories

Please check that the following accessories are supplied with your camcorder.

• Wireless Remote Commander (1) 	• Size AA (R6) battery for Remote Commander (2) 	• Battery pack NP-66H (1) 
• AC power adaptor AC-V65/V65A (1) 	• Lithium battery CR2025 (1) 	• RFU adaptor RFU-90UC (1) 
• A/V connecting cable (1) 	• Shoulder strap (1) 	• Lens cap (1) (attached to the camcorder)

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

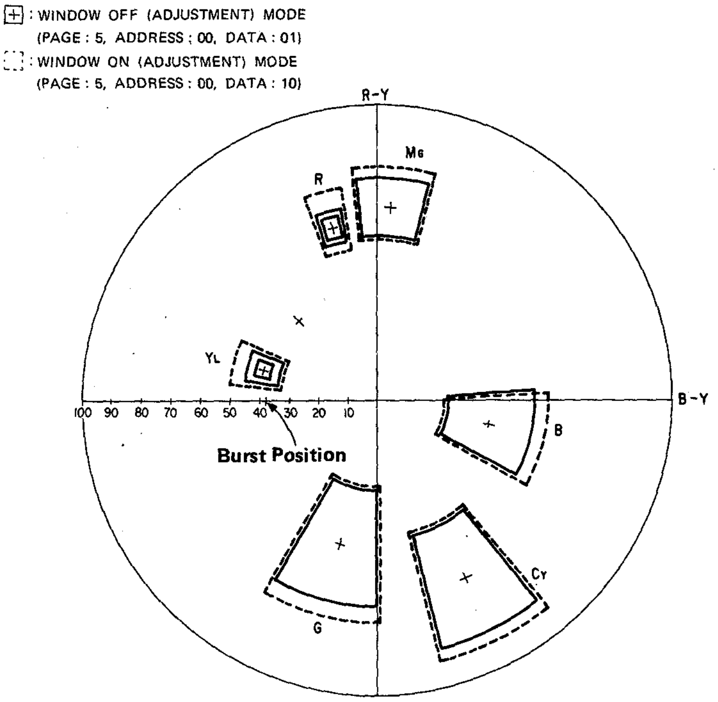
1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING !!

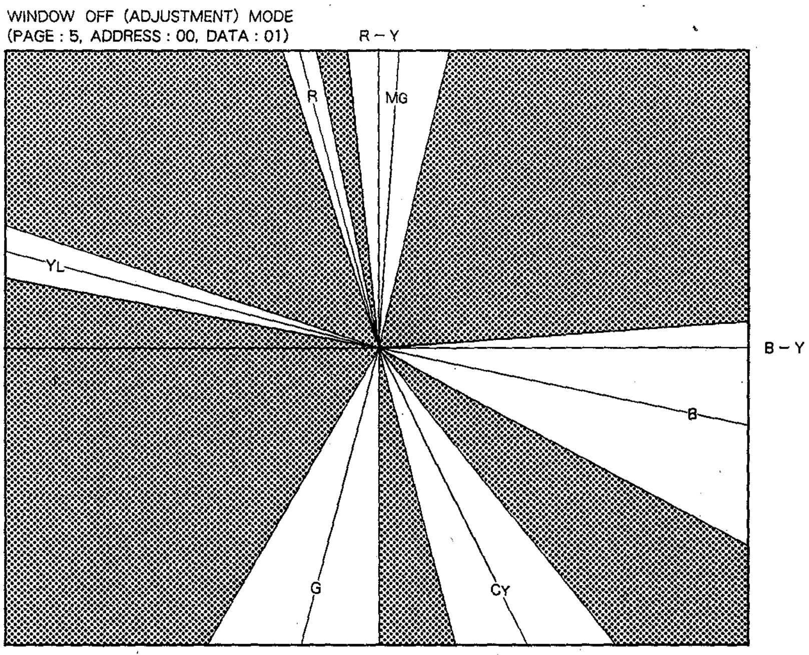
COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

ATTENTION AU COMPOSANT AYANT RAPPORT A LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UN TRAMÉ ET UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES, LES VUES EXPLOSÉES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DES SUPPLÉMENTS PUBLIÉS PAR SONY. LES RÉGLAGES DU CIRCUIT QUI SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNMENT SONT IDENTIFIÉS DANS CE MANUEL. SUIVRE LES PROCÉDURES QUAND LES COMPOSANTS CRITIQUES SONT REMPLACÉS OU LE FONCTIONNEMENT IMPROPRE EST SUSPECTÉ.


⊞ : WINDOW OFF (ADJUSTMENT) MODE
(PAGE : 5, ADDRESS ; 00, DATA : 01)
⬚ : WINDOW ON (ADJUSTMENT) MODE
(PAGE : 5, ADDRESS : 00, DATA : 10)
R-Y
MG
R
YL
B-Y
B
CY
G
100 90 80 70 60 50 40 30 20 10
Burst Position

For Vectorscope


WINDOW OFF (ADJUSTMENT) MODE
(PAGE : 5, ADDRESS : 00, DATA : 01)
R－Y
R
MG
YL
B－Y
B
G
CY

For Oscilloscope

CCD-F501/F555
RMT-502

SONY
SERVICE MANUAL

US Model
Canadian Model
CCD-F501
E Model
CCD-F555

CORRECTION-1

Correct your service manual as shown below.

☛ : indicates corrected portion.

Page	INCORRECT	CORRECT
237	**8-1-1. List of Servicing Jigs** Ref No. Part Name Part No. J-8 Extention Cord (2P) J-6082-873-A	**8-1-1. List of Servicing Jigs** Ref No. Part Name Part No. J-8 Extention Cord (2P) J-6080-873-A ☛

Sony Corporation
Personal Video Group

9-973-089-91

English
92I0934-1
Printed in Japan
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Published by Customer Relations and Service Group

SERVICE NOTE

[SEMICONDUCTOR FOR CORRECTION LIST DISPLAY]

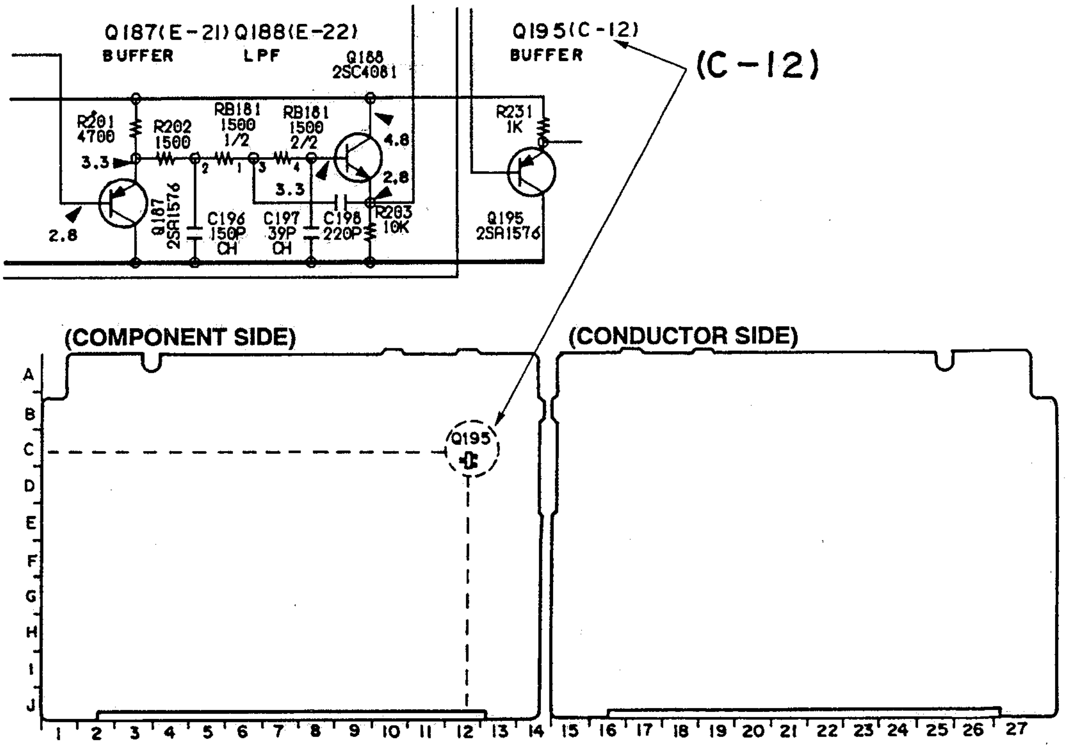
Part code and part name of the semiconductor for correction of the print board is discribed in the space of each print figure. Use this list when ordering parts.

[PARTS LOCATION DIAGRAM RELATED TO POWER SUPPLY]

The parts location diagram for the power supply which are often checked and replaced when repairing the fuse and IC link and so on. (See pages 98 and 160.)
This diagram is useful for repair.

[SEMICONDUCTOR LOCATION]

In this service manual, the mounted locations of the semiconductors (IC, transistor, diodes) are indicated in red sa shown below. This enables to find the location on the board easily when servicing.


Q187(E-21) Q188(E-22)
BUFFER
LPF
Q188
2SC4081
R201
4700
R202
1500
RB181
1500
1/2
RB181
1500
2/2
3.3
4.8
2.8
3.3
2.8
Q187
2SA1576
C196
150P
CH
C197
39P
CH
C198
220P
R203
10K
Q195(C-12)
BUFFER
R231
1K
Q195
2SA1576
(C-12)
(COMPONENT SIDE)
(CONDUCTOR SIDE)
A
B
C
D
E
F
G
H
I
J
Q195
1
2
3
4
5
6
7
8
9
10
11
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27

[HEAD CLEANING]

After an extended period of use the video image may become indistinct or may not appear at all during playback of a tape. The cause of this usually are dirty video heads. For remedy, cleaning of the heads is required.

Check for Head Clogs During Recording

① Use a blank tape, record a short section, then press the stop button to stop.
② Set to recording mode again.
③ If the [✜] mark is flashing in the viewfinder at this time, head clogs are occurred.

Check During Playback of a Tape

① Play back a pre-recorded tape and display the image on a TV screen.
② If there is no sound and the image is unstable, no image appears on the screen, or tape transport is unstable, head clogs are occurred.

Remedy

[Cleaning method using a cleaning tape]

- Use the Cleaning Tape V8-6CLH. (Please follow the instructions attached to the cleaning tape.)

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SECTION 1
GENERAL

This section is extracted from instruction manual.

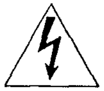
WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Information for the customers in the U.S.A.
This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient the receiving antenna
Relocate the equipment with respect to the receiver
Move the equipment away from the receiver
Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.

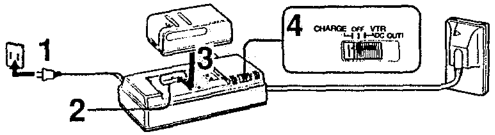
If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:
"How to Identify and Resolve Radio-TV Interference Problems".
This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

Notice for the customers in Canada
This apparatus complies with the Class B limits for radio noise emissions set out in Radio Interference Regulations.

Charging and Installing the Battery Pack

Before you can use this camcorder, you need to charge and install the battery pack.

Charging the Battery Pack



1 Plug the AC power adaptor into a wall outlet.
2 Align the flat side of the battery pack with the line on the AC power adaptor.
3 Push down and slide the battery pack in the direction of the arrow.
4 Set CHARGE/VTR to CHARGE.

Required charging time:

Type of battery pack	NP-66H (supplied)	NP-77H	NP-77	NP-55
Required charging time	100	140	120	60

(approx. minutes using AC-V65/65A)

When charging is finished, the charge indicator will go out.

Important!

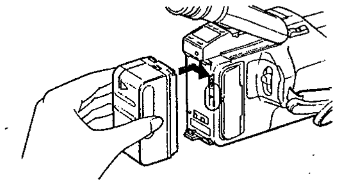
Use the battery completely before charging!

Before you recharge the battery, make sure the battery has been used (discharged) completely to avoid capacity down of the battery caused by excessive charging.

To use up the battery, remove the video cassette and simply slide POWER to CAMERA with the battery attached, and leave the camcorder until the ⊂⊃ mark and red lamp appear blinking in the viewfinder and display window.

Installing the Battery Pack

When you have finished charging the battery, install the battery pack as follows.



1 Align the flat side of the battery pack with the white line on the camcorder.
2 Make sure that the arrow on the battery pack is close to the top of the camcorder.
3 Push down and slide the battery pack in the direction of the arrow.

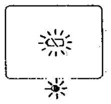
Note:
Make sure the battery is securely installed so that it does not fall. If the battery is not installed properly, the camcorder will not record accurately.

A fully charged battery pack lasts for:

Type of battery pack	NP-66H (supplied)	NP-77H	NP-77	NP-55
Battery life	80	110	90	45

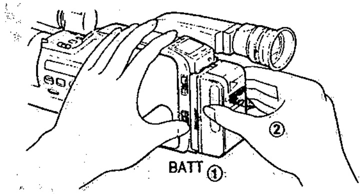
(approx. minutes, continuous recording when used indoors)

When the battery becomes weak, the ▭ indication and red lamp blink in the viewfinder. Wait until they blink rapidly, then replace the battery pack with a fully charged one.



To remove the battery pack

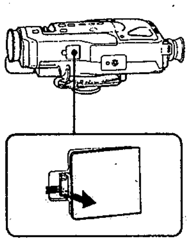
Slide BATT up, and at the same time, slide out the battery pack to the left.



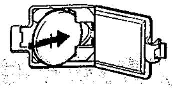
Installing the Lithium Battery

Install the lithium battery to keep a title and birth dates in the camcorder's memory as well as to activate the clock.

1 **Use your fingernail to open the cover of the lithium battery compartment on the bottom of the camcorder.**



2 **Install the supplied CR2025 lithium battery with the + side facing out.**



3 **Close the cover.**

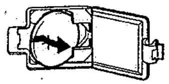
Lithium battery life

The battery will last for approximately 1 year in normal operation.
When the lithium battery becomes weak, the <+> indication will blink in the viewfinder screen for about 5 seconds when you set POWER to CAMERA. In this case, **replace the battery with a Sony CR2025 or Duracell DL-2025. Use of any other battery may present a risk of fire or explosion.**

When replacing the lithium battery, keep the battery pack or other power source attached. Otherwise, readjustments of the date, time, title and birth dates are necessary.

To remove the lithium battery

Press the side of the battery in the direction as indicated for installation.

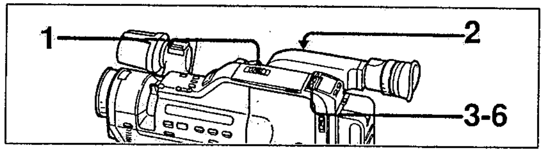


Warning

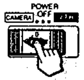
Battery may explode if mistreated. Do not recharge, disassemble or dispose of in fire.

Setting the Date and Time

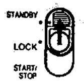
Now, let's adjust the clock inside the camcorder to be able to superimpose date and time onto your video. Make sure that power source and lithium battery are attached.



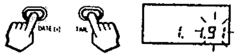
1 Press the small green button on POWER and push POWER to CAMERA.


POWER
CAMERA
OFF

2 Push the cover of the red button up until it snaps into STANDBY.

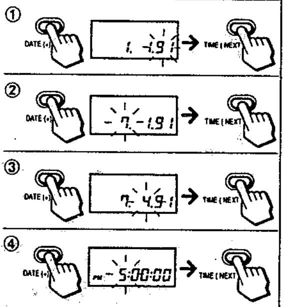

STANDBY
LOCK
START/STOP

3 Press DATE (+) and TIME (NEXT) simultaneously for more than one and a half seconds until the date indication appears in the display window.
DATE now functions as + (to advance numbers) and TIME functions as NEXT (to set).

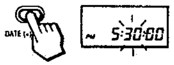


4 Adjust the flashing digits of the year, month, day, and hour using DATE (+), and press TIME (NEXT).

Notes
- When you keep DATE (+) pressed, the digits advance faster.
- The year starts at 1991 and proceeds as follows: 1991→1999→2000→2020 ↑


①
DATE (+)
TIME (NEXT)
②
DATE (+)
TIME (NEXT)
③
DATE (+)
TIME (NEXT)
④
DATE (+)
PM 5:00:00
TIME (NEXT)

5 Adjust the flashing digits of minute using DATE (+).


DATE (+)
PM 5:30:00

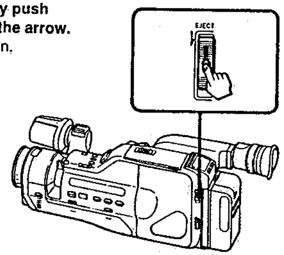
6 Press TIME (NEXT) to set the second to "00".
The clock starts operating

To correct date and time setting Repeat steps 3 to 6.

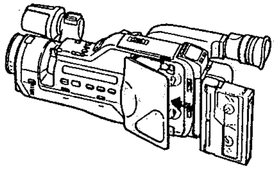
Inserting a Tape

Make sure that the battery pack or other power source is attached.

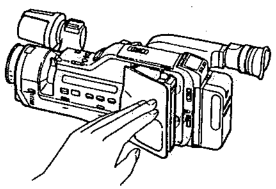
1 Press the small blue button on EJECT and simultaneously push EJECT in the direction of the arrow.
The cassette holder will open.



2 Insert a tape with the window facing outside.

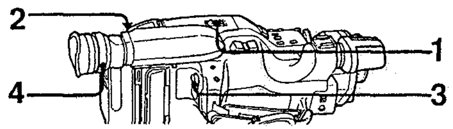


3 Close the cassette holder by pressing the area marked "PUSH".

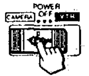


Adjusting the Viewfinder Lens

You may want to adjust the viewfinder lens to best fit your eyesight when you use this camcorder for the first time, or when you use it after someone else did. Make sure that a battery pack or other power source is attached to the camcorder.

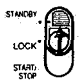


1 **Press the small green button and slide POWER to CAMERA.**

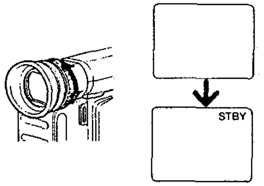


2 **Insert a tape.** (See page 10).

3 **Push the cover of the red button up until it snaps into STANDBY.**

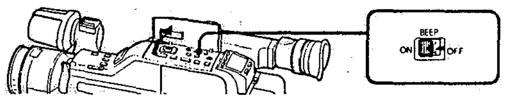


4 **Turn the ring around the viewfinder lens until the "STBY" indication displayed in the viewfinder screen comes into sharp focus.**



Setting the BEEP Switch

This beep sound is to help you cofirm when you start and stop recording.
When BEEP is set to ON, it will beep once when you start recording and beep twice when you stop recording. It will also beep several times as a warning of any unusual conditions of the camcorder.
If you want to deactivate the beep, set BEEP to OFF.



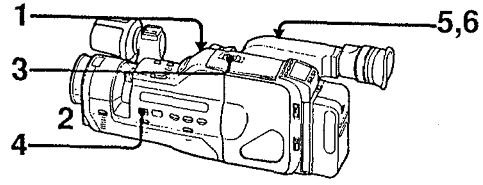
Notes:

- Beep will not be recorded on the tape.
- For warning beep, see page 74.

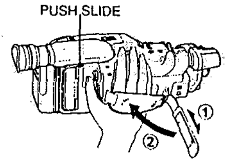
Now it's ready for recording!

How to Record

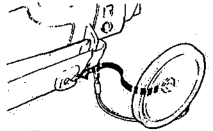
Before you record one-time events, make a trial recording to make sure that the camcorder is working perfectly.
It is very easy to start recording scenes.



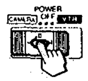
1 **Hold the camcorder by putting your hand through the grip belt so that your thumb can easily press the red START/STOP button.**
If your nose touches the camcorder, press PUSH SLIDE and adjust the position and angle of the viewfinder.



2 **Remove the lens cap and attach it to the grip belt.**

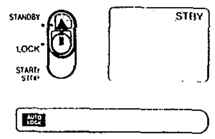


3 **Press the small green button on POWER and slide POWER to CAMERA.**
This will put camcorder in camera recording mode.

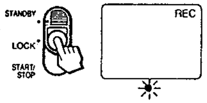


4 **Set AUTO LOCK to the green position.**
This will make every adjustment automatic.

5 **Push the cover of the red button up until it snaps into STANDBY.**
Now, you can see through viewfinder.
"AUTO LOCK" appears in the display window.



6 Press START/STOP (red button) once.
A beep sounds. The camera is recording when the "REC" appears on the viewfinder screen and the red lamp lights.
In the viewfinder you can see a black and white picture of what you are recording and information that indicates what the camcorder is now doing.



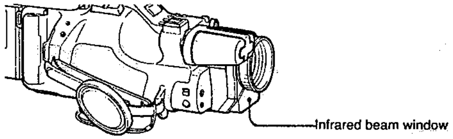
Automatic recording
With AUTO LOCK set to the green line, all the camera functions are on automatic (i.e. autofocus, auto iris, auto white balance) and the shutter speed is set at normal (1/60 second).

To stop recording momentarily
Press START/STOP again. "STBY" appears in the viewfinder. It beeps twice when you have BEEP turned on.

When you have finished recording
1 Push the cover of the red button down to cover the START/STOP button.
2 Slide POWER to the center OFF position.

Ejecting the tape
Make sure that you have attached the battery pack or other power source to the camcorder.
1 Press the small blue button on EJECT, and at the same time push EJECT in the direction of the arrow.
2 Take out the tape.
3 Press the PUSH mark on the cassette holder to close it.

Notes on automatic recording
- During recording, do not cover the infrared beam window.
- Keep the lens and the infrared beam window clean.



About the sports finder
This camcorder is equipped with the sports finder. As the focul length of this finder is long, you can monitor the picture while being away from the eyecup.

Note on the microphone
The microphone is fixed to the camcorder.
Do not turn the microphone or hold the camcorder by the microphone. This may damage the camcorder.

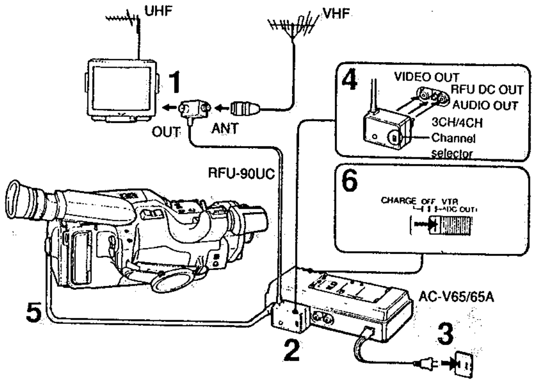
Caution!
Please remember that you can only use 8 mm-format video tapes with this camcorder and that is not possible to use PCM recording/palyback available on some 8 mm recorders. The PCM sound recorded or after-recorded with other recorder cannot be played back with this camcorder. You will be able to record tapes in SP (standard play) mode only and play back tapes in both SP and LP (long play) modes.

How to Play Back a Tape

You can use this camcorder as a VCR by connecting it directly to your TV for playback. After you connect this camcorder to your TV, use the Remote Commander for convenient control of the camcorder.

If Your TV Has Only an Antenna Input

There are several ways to connect the camcorder to your TV. Please check whether your TV has video/audio inputs. If your TV has only an antenna input, use the supplied RFU adaptor and AC power adaptor. The playback sound will be monaural. Make sure that the TV is turned off to prevent speaker damage before hooking up your camcorden
If your TV has video/audio inputs, see page 50.

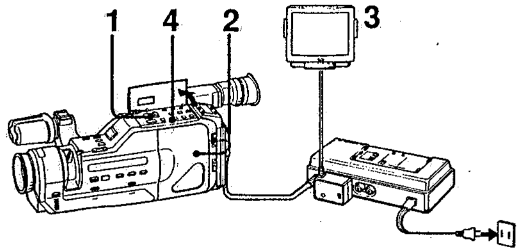


To add your camcorder connection to your TV which is already connected with regular TV (VHF) antenna, you need to:
1 Unplug the antenna cable from your TV first.
Plug in the tail end of the RFU adaptor marked OUT to the antenna input of your TV.
Re-wire the antenna cable you unplugged to the RFU adaptor jack marked ANT.
This way, you can switch between TV broadcasting and your home video playback without re-wiring.
2 Connect the RFU adaptor to the AC power adaptor.
3 Connect the AC power adaptor to a wall outlet.
4 Set the channel selector on the RFU adaptor (and your TV channel) to 3 CH or 4 CH of the VHF channel, whichever is not active (vacant) in your area.
5 Attach the connecting plate of the AC power adaptor to the camcorder.
6 Make sure CHARGE/VTR on the AC power adaptor is set to VTR.

You may want to keep the AC power adaptor and RFU adaptor connected to your TV once you have established the connection. This way you can easily connect your camcorder to your TV just by attaching the connecting plate of the AC power adaptor to the camcorder (steps 5 and 6).

When you want to switch to regular TV program, set CHARGE/VTR on the AC power adaptor to OFF or turn off the power of the camcorder.

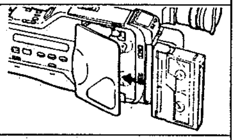
How to Play Back a Tape



1 **Press the small green button and slide POWER to VTR.**

POWER
CAMERA
OFF
VTR

2 **Insert a tape, if it is not in the camcorder.**



3 **Turn on the TV and select the channel that you adjusted the RFU adaptor (3 CH or 4 CH).**
If you are connecting with video/audio inputs, set TV's TV/VIDEO selector to VIDEO.

4 **Press ▷.**

To stop playback, press ◻.
To rewind the tape, press ◀◀.
To advance the tape rapidly, press ▶▶

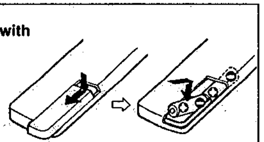
When you have finished playback

1 Slide POWER to the center OFF position.
2 Set CHARGE/VTR on the AC power adaptor to OFF.

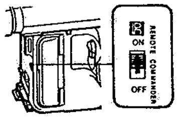
Using the Remote Commander

By using the Remote Commander, you can record yourself with your friends or family, or conveniently control the playback of your tape from a distance.

1 **Insert two size AA (R6) batteries with correct polarity.**

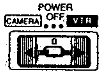


2 **Set REMOTE COMMANDER ON/OFF on the camcorder to ON.**

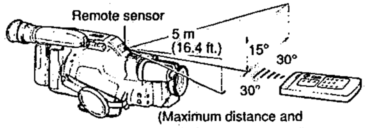


3 **Set POWER on the camcorder as follows:**
–When recording,1) press the small green button and slide POWER to CAMERA, 2) push the cover of the red button up until it snaps into STANDBY.

–When playing back, slide POWER to VTR.



4 **Point the Commander to the remote sensor of the camcorder and press the appropriate button on the Commander.**

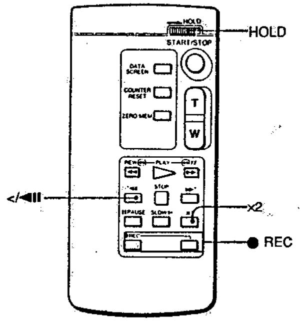


(Maximum distance and angle for remote control)

Notes on the Remote Commander

- Keep the remote sensor away from the strong light source such as direct sunlight or illumination. Remote control with the Commander may not be effective.
- Be sure that there is no obstacle between the remote sensor and Commander.
- The command mode of the Commander is VTR2. Avoid to use the Sony VCRs with the same command mode at the same time.

Getting familiar with some buttons



HOLD switch
When you slide the switch in the direction of the arrow, all the buttons will become inoperable to prevent any misoperation when you accidentally press the buttons.

</◄II (reverse direction/reverse frame) and x2 (double speed playback) buttons
You can use the functions of these buttons only with the Commander.

●REC buttons
When you record in the VCR mode, press these two buttons simultaneously.

Battery life

In normal operation, batteries will last up to six months. If the camcorder does not operate properly, the batteries might be exhausted. Replace both batteries with new ones.

To avoid damage from possible battery leakage

Remove the batteries when you will not use the Commander for a long time.

When you connect the receiver of a remote control kit

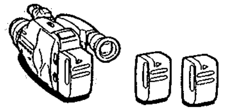
When you connect the receiver of a remote control kit (not supplied) to the REMOTE ⊄ control connector, be sure to set REMOTE COMMANDER ON/OFF on the camcorder to OFF.

How to Get the Most out of Your Battery Pack

How to Prepare the Rechargeable Battery Pack

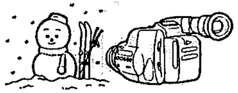
Have sufficient battery pack power to do 2 or 3 times as much recording than you have planned.

"Battery life" indicated in this manual is measured by the continuous recording time of the camcorder, placed at a room temperature using a full-charged battery.



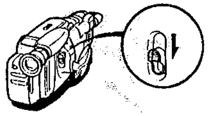
Battery life is shorter in a cold climate.

Battery efficiency is decreased and the battery will be used up more quickly.



Turn STANDBY of the camcorder off when not recording to save battery power.

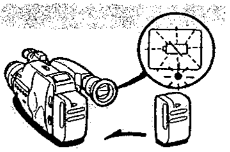
A smooth transition between scenes can be made even if recording is stopped and started again. While positioning the subject or selecting an angle, or looking through the viewfinder lens, the lens moves automatically and the battery is used. The battery is also used when a tape is inserted or removed.



When the Rechargeable Battery Pack Should Be Replaced

When the ⊏⊐ mark and red lamp in the viewfinder change from slow blinking to rapid blinking while you are recording.

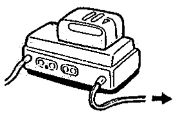
Turn off the power switch of the camcorder and replace the battery pack. Leave the tape in the camcorder in order to obtain a smooth transition between scenes after the battery pack is replaced.



Notes on Charging

Before using the battery pack, charge it sufficiently.

A brand new battery pack is not charged.



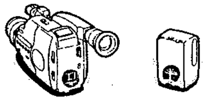
Make sure you use up the battery before recharging.

- If recording is completed before the ⊏⊐ mark appears in the viewfinder, it is recommended that you remove the tape, push POWER to CAMERA, push the cover of the red button up until it snaps into STANDBY, and leave the camcorder until the ⊏⊐ mark blinks rapidly.
- Repeated charging without using up the battery may cause a lowering of battery capacity. However, the original battery capacity can be recovered if you fully discharge (use up) and charge the battery again.

Recharge the battery pack after long storage. If the battery pack is charged fully but not used for a long time (about 1 year), it becomes discharged.
Charge it again, but in this case the battery life will be shorter than normal.
After several charging and discharging cycles, the battery life will recover its original capacity.

Keep the Terminals Clean

If the terminals (metal parts on the back) are not clean, the battery duration will be shortened. When the terminals are not clean or when the battery pack has not been used for a long time, install and remove the battery pack from time to time. This will improve the contact condition. Also, wipe the + and – terminals with a soft cloth or paper.



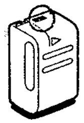
Notes on the Rechargeable Battery Pack

Why the battery pack heats up? During charging or recording, the battery pack heats up. This means energy has been generated and chemical change has occurred inside the battery pack and this is not dangerous.

How to care for the battery pack

- Remove the battery pack from the camcorder after using it, and keep it in a cool place. When the battery pack is in the camcorder, a small amount of current flows to the camcorder even if POWER is turned off. It causes overdischarging and shortens battery life.
- The battery pack is always discharging even when it is not in use after charging.
  Thus, it is recommended you charge the battery before using.

How to use the switch on the battery pack This switch is provided so that you can remember the charging condition. Set the switch to the "no mark" position when charging is completed. Set the switch to the "red mark" position when the battery is used up.



How many times can the battery pack be recharged? It can be fully charged and discharged about 500 times under normal temperatures.
If the ⊂▭ mark blinks rapidly just after turning on the camcorder with a fully charged battery pack, the battery pack should be replaced with a new fully charged one.

Recommended temperatures during charging Lower temperatures require a longer charging time. Charging under temperatures ranging from 10°C to 30°C (5°F to 85°F) is recommended.

Connecting Alternative Power Sources

You can choose any of the following power sources for your camcorder: battery pack (see page 6), alkaline batteries, house current, and 12/24 V car battery. The appropriate power source for you to choose depends on the place where you want to use your camcorder.

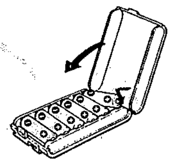
Place	Power source	Accessory to be used
Outdoors	Battery pack	Battery pack NP-66H (supplied), NP-77H, NP-77 or NP-55
	Alkaline batteries	Battery case EBP-55
Indoors	House current	AC power adaptor AC-V65/65A (supplied), AC-V30 or AC-V55
In the car	12 V or 24 V car battery	DC pack DCP-77 or DCP-55

Note on power sources Disconnecting the power source or removing the battery pack during recording or playback may damage the inserted tape. In this case, supply the power again immediately.

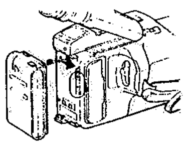
Using Alkaline Batteries

The EBP-55 battery case (not supplied) is required.

1 Insert the six size AA (R6) alkaline batteries into the battery case.



2 Attach the case in the same way as the battery pack. (See page 7.)



Battery life The battery life is approx. 40 minutes (continuous recording when used indoors).

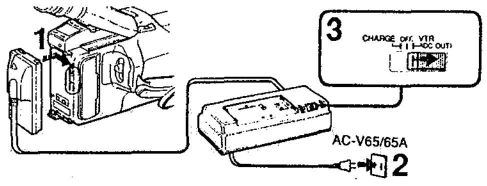
To remove the battery case Remove it the same way as you do with the battery pack. See page 7.

Notes on battery life

- Batteries will not last as long in cold places.
- No indication appears in the viewfinder to warn of a weak battery.

Using House Current

The supplied AC-V65/65A AC power adaptor is required.



1 **Align the flat side of the connecting plate with the line on the camcorder, and push down and slide it in the direction of the arrow.**

2 **Connect the AC power adaptor to a wall outlet.**

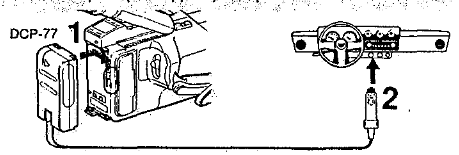
3 **Set CHARGE/VTR of the AC power adaptor to VTR.**

See the instruction manual of the AC power adaptor for details.

To remove the connecting plate Remove it the same way as you do with the battery pack. See page 7.

Using Car Battery

The DCP-77 DC pack (not supplied) is required.



1 **Align the flat side of the DC pack with the line on the camcorder, and push down and slide it in the direction of the arrow.**

2 **Connect the cord of the DC pack to the cigarette lighter socket of a car (12 V or 24 V).**

To remove the DC pack Remove it the same way as you do with the battery pack. See page 7.

Options for charging

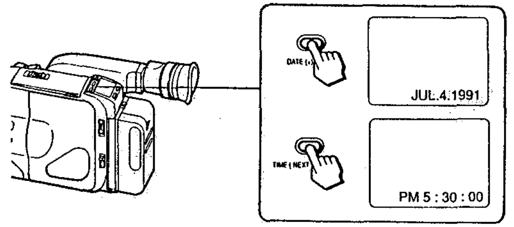
- AC-V55 AC power adaptor: You can charge two battery packs continuously using this adaptor and the house current. By connecting this adaptor with the DCC-16AW car battery cord, you can use your camcorder with the car battery.
- BC-55, BC-77 portable battery charger: You can charge a battery pack on 100–240 V AC.
- DC-V30 car battery charger: You can charge a battery pack through the cigarette lighter socket.

Camera Recording

In the previous chapter "Basic Camera Operation", you learned the basic recording operations. This section shows you how to record the date or time, record in a strong wind, re-record a picture, prevent accidental erasure, and more.

Recording the Date or Time

Date or time can be superimposed on your recording.

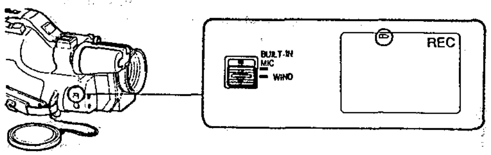


During camera recording or when in standby mode, press DATE for date indication or TIME for time indication.

The date or time displayed in the viewfinder is recorded with the picture.

To stop recording date or time Press DATE or TIME again. The picture recording continues.

Recording in a Strong Wind

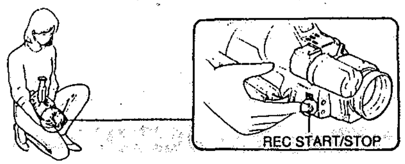


Set BUILT-IN MIC to WIND. The wind noise will be reduced. Wind mark ⊂⊃ will appear in the viewfinder.

After recording, return it to the green position.

For Low-position Recording

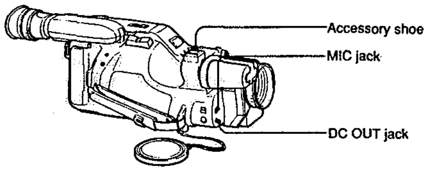
You can also record from low position using separate REC START/STOP button to get an interesting record angle.



Adjust the viewfinder (it can be turned 90 degrees up). Press REC START/STOP in front of the camcorder. To stop recording, press it again.

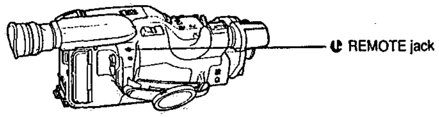
Recording with an External Microphone

You can connect an external microphone (stereo or monaural, not supplied) to the MIC jack. This jack also accepts a "plug-in-power" microphone. If the microphone has two plugs, connect the DC IN plug to the DC OUT jack. Attach the microphone to the accessory shoe of the camcorder.



Connecting a Wired Remote Control Unit

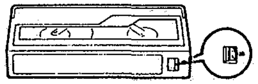
When you connect a wired remote control unit or editing controller (not supplied) to the ⇄ REMOTE jack, you can operate your camcorder from a distance.



About ⇄ (LANC) ⇄ stands for Local Application Control Bus System. The ⇄ jack is used for controlling the tape transport of video equipment and peripherals connected to it. This jack has the same function as the connectors indicated as CONTROL L or REMOTE.

Preventing Accidental Erasure

Slide the tab on the cassette to expose the red mark.
This will prevent accidental recording.
To re-record on this tape, slide the tab back out covering the red mark.
If you try to record with the red mark exposed, the ⊡ and ⏏ indications blink in the viewfinder and beeps sound about five seconds.



Note on handling tapes Never insert anything in the small holes on the rear of the cassette. These holes are used to sense the tape type and thickness, or the tab position, etc. Store tapes in their cases and keep them in an upright position to prevent intrusion of dust and uneven winding.

Making Manual Adjustments

The camcorder's automatic functions offer you worry-free operation under most shooting conditions. But in some circumstances, manual adjustment is better for effective recording. You can manually adjust the following items with this camcorder:

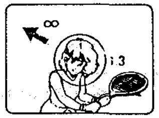
- Focus
- Back light compensation
- White balance
- Shutter speed

In addition, when you use the PROGRAM AE (Auto Exposure) function in the manual mode, you can get a scene like a portrait or clear picture in the still and slow motion playback.

What is PROGRAM AE (Auto Exposure)? Program AE automatically selects just the right combination of shutter and aperture settings and gives you creative control of depth of field (distance range of object that will be in sharp focus). There are two preprogrammed modes; Portrait and Sports. (See pages 35 and 36.)

Function of the AUTO LOCK switch When you set AUTO LOCK to the green position, back light, white balance, and/or shutter speed is returned to the normal setting regardless of the control setting. And focus is retained to autofocusing. Turning on the AUTO LOCK switch disables these control buttons. Turning off (at the lower white position) the AUTO LOCK switch does not automatically result in setting all of these items to manual. This merely enables the control buttons to be set manually. Some shooting situations may call for using some items manually, while others call for using them automatically.
As long as you do not remove the battery, even if you set POWER to OFF, the previous manual settings are retained.

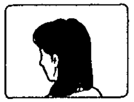
Autofocusing system of this camcorder This camcorder adjusts focus automatically by emitting an infrared beam at the objects to be shot and then detecting the reflected beam. When the subject is approximately 3 meters away from the camcorder, the focus is sharpest in the center of the screen. The camcorder has the tendency, however, to focus a bit lower to the right when the subject is within 3 meters, and a bit higher to the left when the subject is more than 3 meters away.



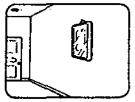
Focusing Manually

In the following cases you would obtain better results by adjusting the focus manually.

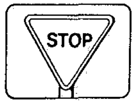
Black objects which absorb the infrared beam
Ex. dark curtains or shade



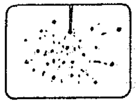
Objects in which the infrared reflection disperses
Ex. a smooth slanting surface (Autofocusing functions when the camcorder is aimed squarely at the subject.)



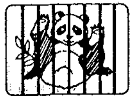
Objects in which the infrared beam is reflected too much
Ex. traffic signs, a white wall, a mirror, or a subject through plate glass



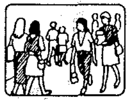
Objects not solid
Ex. fireworks, candle flame or smoke



When there are other objects between the shooting object and this camcorder
Ex. an animal inside a cage or baby inside a cot



Moving objects
Ex. a crowd or sports with lots of movement



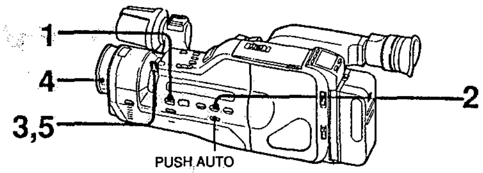
- Objects which emit infrared beams themselves
  Ex. automatic doors, fluorescent lights, TV or VCR Remote Commander, or another Commander that uses an infrared beam for autofocusing.
- Objects more than 20 meters (65 feet) away from the camcorder
  Especially with an overcast day, or at night.

The autofocusing does not function momentarily in the following cases:
- When the camcorder is rapidly panned from a distant subject to a nearby subject.
- When you are shooting fast moving objects.

Making Manual Adjustments

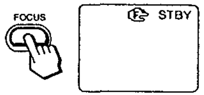
How to focus manually

When adjusting focus manually, best way is to first adjust at telephoto position before recording, then set the desired zoom angle. Let's go through step by step.

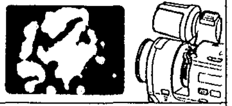


1 Set AUTO LOCK to the lower position.

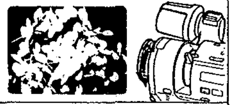
2 Press FOCUS.
The F indication appears in the viewfinder.



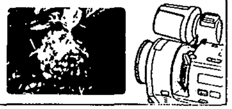
3 Turn the manual zoom lever fully to the telephoto position.



4 Turn the focus ring to achieve sharp focus.



5 Set the desired shot length using the manual zoom lever.



Shooting with autofocusing momentarily

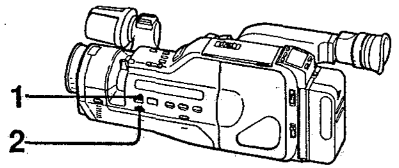
While shooting with manual focusing, press PUSH AUTO.
The autofocusing functions **while you are pressing the button**. When you release the button, manual focusing will be resumed. Use this button when you change the focus from one subject to another. The focusing performs naturally.
The previous settings except for focusing are retained.

Some helpful hints

- When shooting in relatively dark places such as indoors, the depth of field in proper focus is very shallow. For best results, shoot at wide angles after focusing in telephoto.
- When shooting a scene with lots of movement in bright light, set the zoom lever to the wide-angle position and the focus ring to 2 to 3 m (7 to 10 ft).

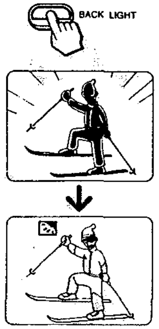
Compensating Backlighting

In this camcorder, the exposure is automatically controlled. However, when shooting a subject that is backlit, that is, if the light source is coming in from the back of the subject, use the BACK LIGHT button to get natural exposure.



1 **Set AUTO LOCK to the lower position.**

2 **Press BACK LIGHT.**
The ⧉ indication appears in the viewfinder. If it does not appear, press the button again.

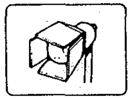
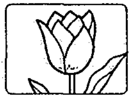
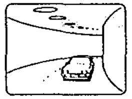
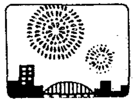


After shooting

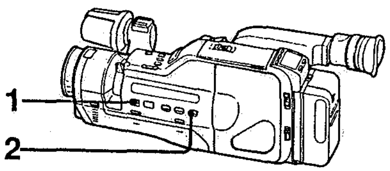
Be sure to release this adjustment by pressing BACK LIGHT again. (The ⧉ indication goes out.)
Otherwise, the picture will be too bright under normal lighting condition.

Adjusting the White Balance

What is white balance? White balance adjustment means to get most natural color temperature under certain lighting condition.
In the following cases, you would obtain better results by adjusting the white balance manually.

Conditions		Indication in the viewfinder
 	Lighting conditions change quickly	💡 (indoor)
	Too bright, such as in photograph studios	💡
	Monochromatic subject or background	HOLD
	Under a sodium lamp	💡
	Under a mercury lamp	💡
	Under a color matching fluorescent lamp	☀ (outdoor)
	Recording outdoors: a night view, neon signs or fireworks	☀
	Recording outdoors: scenes after sunset or before sunrise	☀

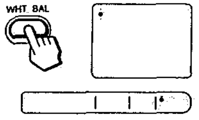
How to adjust the white balance



1 **Set AUTO LOCK to the lower position.**

2 **Select the desired white balance mode by pressing WHT BAL.**
Each time you press the button, the indication in the viewfinder and the display window changes as follows:

No indication → HOLD → ☀ → ✧



Note:
When moving from indoors to outdoors, or vice versa, set AUTO LOCK to the green position and adjust the white balance in auto mode, then reset the white balance manually.

Keeping the White Balance Setting (HOLD Mode)

What is the HOLD mode?

In the HOLD mode, the camcorder automatically adjusts the white balance according to the color temperature of the subject's light source and keeps that setting during recording. When recording some subjects with different color temperatures (when lighting condition changes often), use the HOLD mode. Then you can achieve a recording with natural colors without being affected by the surroundings.

To set into the HOLD mode

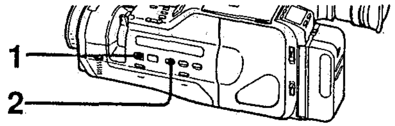
1 Set AUTO LOCK to the lower position and press WHT BAL to set to the auto mode (no indication).
2 Point at and record a white, flat object such as a white wall, or paper.
If you cannot find a white object, you may want to attach the lens cap and direct the camcorder to light sources.
3 Press WHT BAL.
The HOLD mark appears in the viewfinder.

When you change the battery pack or setting of the white balance, or the light source is changed, you need to set to the HOLD mode again. In this case, follow the procedures above again.

Using the High-speed Shutter

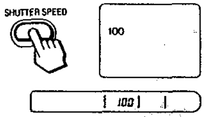
When you record a fast-moving subject, choose a higher shutter speed. The movement will look clearer when played back in the pause mode. Remember that you need enough lighting to use high speed shutter.

How to select the shutter speed



1 **Set AUTO LOCK to the lower position.**
Make sure that neither 🎥 nor ⛷ appears in the display window.

2 **Press SHUTTER SPEED repeatedly until the desired shutter speed indication appears.**



→No indication (1/60) →100 (1/100) → 250 (1/250)
4000 (1/4000) ← 2000 (1/2000) ← 1000 (1/1000) ←

How to choose best shutter speeds

Example use	Recommended shutter speed
• On clear days, recording golf or tennis swing (To view the hit ball clearly in the still picture mode, set to 1/4000) • Recording skiers	1/4000 or 1/2000
• On overcast days, recording a moving carousel or roller coaster • Recording outdoors from inside a moving vehicle (for stable shooting)	1/1000 or 1/250
• Instead of the ND2 filter (To reduce the exposure level to about a half) • Recording indoor sports (for stable shooting)	1/100

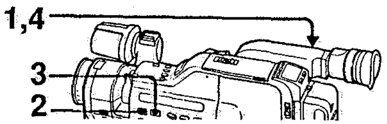
Notes:
- When you select shutter speed 1/250 or faster, record under sunlight or use a video light.
- When you record a TV screen with certain shutter speeds, the brightness of the recorded picture may vary.
- When you shoot a very bright subject at a faster shutter speed, a light vertical, belt-like line ("smear") may appear on the screen.
- When you record at certain shutter speeds under a light discharged tube, such as a fluorescent lamp, sodium lamp or mercury lamp, the brightness of the recorded picture may vary.

Using the Portrait Mode

(This icon shows the Portrait Mode.)

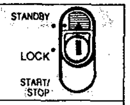
In the portrait mode, the subject is in focus and the background is out of focus. You can use this mode to highlight subject. The opening of the iris and the shutter speed is automatically adjusted to maintain the appropriate exposure according to the size and brightness of the object. The portrait mode is most effective to be used outdoors.

You may want to use the portrait mode when shooting the following subjects:
- a still subject such as a person or flower
- zooming in a subject in the telephoto mode
- subjects behind such obstacles as net



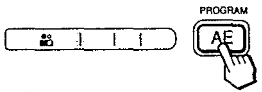
How to set to portrait mode

1 **Push the cover of the red button up until it snaps into STANDBY.**



2 **Set AUTO LOCK to the lower position.**

3 **Press PROGRAM AE until 👥 appears in the display window.**



4 **Press START/STOP.**
Recording with the portrait mode starts.

STANDBY
LOCK
START/STOP

To resume the automatic mode

Press PROGRAM AE until neither 👥 nor 🏃 appears in the display window or set AUTO LOCK to the green position.

Hint for effective camera work

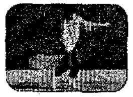
Use of the portrait mode in the following method will gradually bring the background out of focus while keeping the object in focus.
1 Enter the portrait mode.
2 Set AUTO LOCK to the green position and start recording.
3 Set AUTO LOCK to the lower position.
The camcorder enters the portrait mode and brings the background out of focus.

Note

When recording under fluorescent, sodium, or mercury lamp, the brightness of the recorded picture may vary, or the color of the recorded picture may become unnatural.

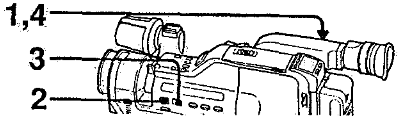
Using the Sports Mode

(This icon shows the Sports Mode.)



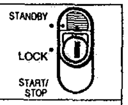
In the sports mode, you can record subjects moving at high speed clearly, providing a high-quality picture minimum blur in the slow and still playback modes. The shutter speed and the opening of the iris are automatically adjusted to maintain the appropriate exposure according to the speed of the object. The sports mode provides more effective recording than you can achieve by using the SHUTTER SPEED button.

You may want to use the sports mode when shooting the following subjects:
- outdoor sports scene such as football, tennis or golf
- recording a landscape in a moving car



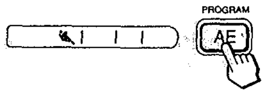
How to set to sports mode

1 **Push the cover of the red button up unti it snaps into STANDBY.**

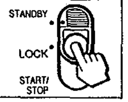


2 **Set AUTO LOCK to the lower position.**

3 **Press PROGRAM AE until 🏃 appears in the display window.**



4 **Press START/STOP.**
Recording with the sports mode starts.



To resume the automatic mode

Press PROGRAM AE until neither 👥 nor 🏃 appears in the display window or set AUTO LOCK to the green position.

Hint for effective camera work

When shooting sports event from a distance, such as a football game, we tend to zoom from the wide-angle to the telephoto position to catch the one-time events. Even under these circumstances, by using the sports mode, you can get a sharp picture when played back later in the slow or still mode.

Notes

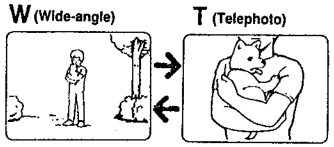
- The sports mode is effective under sufficient lighting, such as under sunlight. When used under extremely dark conditions, the shutter speed may not be shifted to high speeds.
- When recording under fluorescent, sodium, or mercury lamp, the brightness of the recorded picture may vary, or the color of the recorded picture may become unnatural.

Using the Special Effects

You can get a professional-looking home video using these special effects; zoom, close-up, fade-in, and fade-out.

Zooming

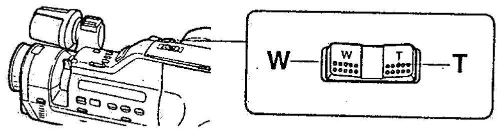
You can change the size of the subject in the scene. Use zooming to focus manually or to decide the shooting angle. Also use "zoom-in (Telephoto) " for dramatic close-ups. Use "zoom-out (Wide-angle)" for panoramic long shots. Most common mistake, however, is using zoom-in or zoom-out too often during recording. For natural recording, you may want to set the zoom first and than start recording.



You can zoom using motorized power zoom or manually with zoom lever.

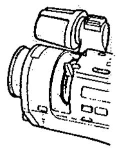
Power zooming

Use the power zoom for smooth and constant zooming.
Press the T side of the power zoom button for telephoto (subject appears closer) and the W side for wide-angle (subject appears farther away).
The zooming speed is faster when the power zoom button is pressed firmly, and slower when the button is pressed lightly.



Zooming Manually

Use the manual zoom to create a dramatic effect or changing zoom angle quickly.
Turn the manual zoom lever upward for telephoto and downward for wide-angle.

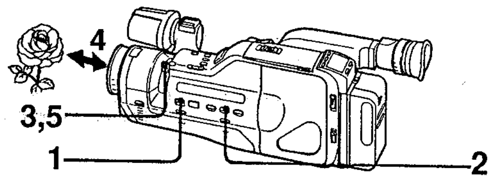


Focal length of this camcorder

The focal length is 8.5 mm to 85 mm ($^1/_3$ to $3^1/_3$ inches). This means approximately 46 mm to 460 mm ($1^3/_4$ to $17^1/_2$ inches) converted into the focal length of a 35-mm still camera.

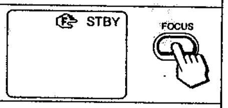
Close-up (Macro)

Even tiny subjects, such as flowers, insects and photographs can fill the screen shooting in macro. This is also useful when storing a title for superimposing text (page 41).

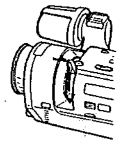


1 **Set AUTO LOCK down.**

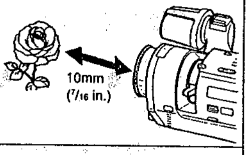
2 **Press FOCUS to set the manual focusing.**
The ⓕ indication appears in the viewfinder.



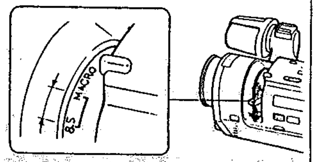
3 **Turn the zoom lever to the MACRO position, pressing the green macro set button.**



4 **Bring the camcorder as close as necessary to obtain the desired size of image.**
The subject can be as close as a minimum of 10 mm ($^7/_{16}$ in.) from the lens surface.



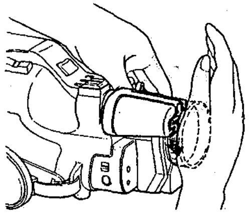
5 **Turn the zoom lever within the MACRO range to focus sharply.**



Notes:
- Autofocusing does not function in macro shooting.
- If the object is closer than 10 mm ($^7/_{16}$ in.), it cannot be brought in focus.

If the lens hood touches the subject.

Remove the lens hood. Hold the focus ring and turn the hood by pressing it with your palm. Do the same when attaching or removing the filter or conversion lens (not supplied).



When you cannot come close to the object

You can record a close-up picture between 0.75 to 1.3 m (2.5 to 4 feet) away from the object.
Turn the zoom lever to the telephoto end position (85).

Recommended accessory

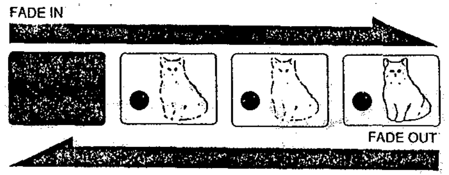
When shooting in macro, the depth of field becomes very shallow. Pay attention to focusing. To keep the subject in focus, use a tripod.

Note

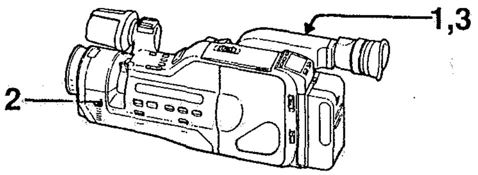
You need enough lighting to shoot a title card, etc. indoors.

Fade-in and Fade-out

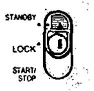
You can fade-in or fade-out to/from your recording to give professional looking transition.
When fading in, the picture will gradually appear from black. The sound will also be gradually increased.
When fading out, the picture will gradually fade to black. The sound will be decreased.



To fade-in



1 **Push the cover of the red button up until it snaps into STANDBY.**

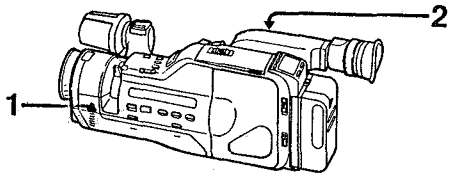


2 **Press FADER.**

3 **Press START/STOP.**
Fade-in is performed and recording will start.

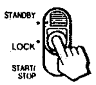
STANDBY
LOCK
START/STOP

To fade-out



1 **While recording, press FADER.**

2 **Press START/STOP to stop recording.**
Fade-out is performed and then recording stops.

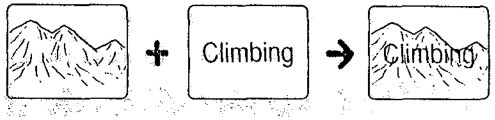


To cancel the fade in/ out function	Before pressing START/STOP, press FADER again.
If you want to use the fade in/out function repeatedly	Start from step 1 each time.
When the title (page 44), date/time (page 22), or age (page 49) is displayed	The title, date/time, or age does not fade-in or fade-out.

Superimposing Text

You can superimpose your own hand-written message or graphics over the scene during recording or playback. You can also superimpose how many years and months have passed since your child's birthday, or the date of a memorable occasion. Remember that information you want to superimpose must first be stored in the camcorder.

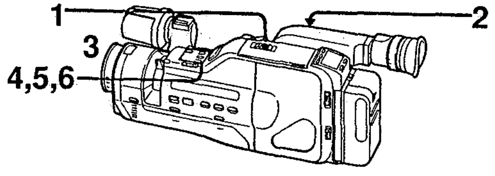
Title superimposing



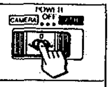
Storing a Title in Your Camcorder

You can choose from eight colors for your title.
Before you store the title, make a title card. Use plain, white card and write a title with a dark-colored marker in thick letters.

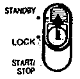
Note:
Make sure that the lithium battery is installed.



1 **Press the small green button and slide POWER to CAMERA.**

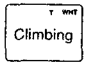


2 **Push the cover of the red button up until it snaps into STANDBY.**



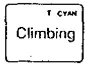
3 **Point the camcorder to the title card and adjust the focus.**

4 **Press MEMORY to store the title.**

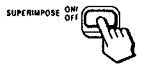


5 **Press COLOR/MODE and select the title color.**
Each time you press the button, the indication changes as follows.

WHT (white) → BLUE → GRN (green) → CYAN → RED
↑
BLK (black) ← YEL (yellow) ← VIO (violet) ←



6 **Press SUPERIMPOSE ON/OFF to turn off the title.**



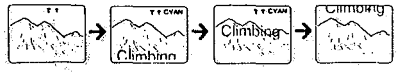
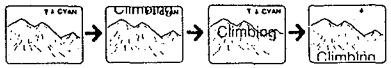
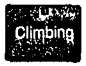
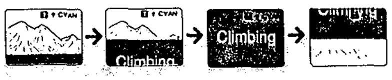
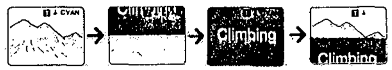
To check the title	Press SUPERIMPOSE ON/OFF in the standby mode. To turn off the title, press the button again.

Putting a Title on Your Tape

What you can do with the title

- You can scroll your title like scrolling credits in a movie.
- You can reverse the title.
- You can record the title on the connected VCR when you edit a tape.
- In addition to superimposing a title at the point you want, you can automatically display or clear the title. The nicest way to use this method is at the beginning or at the end of the tape. (Auto-superimposing)

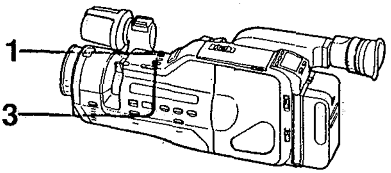
Various display modes of the title

Display mode	Indication in the viewfinder
Scrolling up the title The title scrolls up and stops at the center. 	↑
Scrolling down the title The title scrolls down and stops at the center. 	↓
Reversing the title with the picture 	▯
Scrolling up the reversed title 	▯↑
Scrolling down the reversed title 	▯↓
Normal display mode	No indication
Auto-superimposing	⌞ AUTO

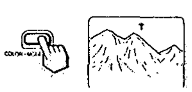
Superimposing Text

How to superimpose

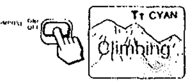
The following shows how to superimpose text using an example in which the title in cyan scrolls up.



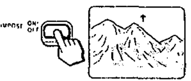
1 **Press COLOR/MODE and select the display mode of the title in the standby or playback pause mode. (For display modes, see page 43.)**



2 **Press SUPERIMPOSE ON/OFF at the point you want to insert the title in the standby mode, during recording, in the playback pause mode or during playback.**
You can change the title color by pressing COLOR/MODE. Each time you press the button, the color indication changes.



3 **Wait for a while and press SUPERIMPOSE ON/OFF.**
The title goes out.



About the color and the display mode indications

The color and the display mode indications in the viewfinder are not recorded.

If you press EDITSEARCH in standby mode

The title goes out. After performing the editsearch or recording review function, the title appears again.

Note on scrolling

You can scroll the title only when the camcorder is in the recording standby, recording, or normal playback mode. In the other modes (see "Playing Back a Tape in Various Speeds on page 52), you can select only reversing (#) or normal display mode. Also scrolling will be cancelled when you set the camcorder in the other modes after selecting scrolling.

About memory back up

The camcorder uses the lithium battery on the bottom to keep the title in memory. The lithium battery life is approximately one year.

Function of the COLOR/ MODE button

This button has a double function: one is to select the title color and the other is to select the title display mode.
Its function depends on if the title is displayed or not.

To select the display mode

1 If the title is displayed, press SUPERIMPOSE ON/OFF so that the title disappears.
2 Press COLOR/MODE.
Each time you press the button, the mode indication changes as follows:
No indication (normal mode) → ↑
↑ ↓
▯↓ ← ▯↑ ← ▯ ← ↓ ←

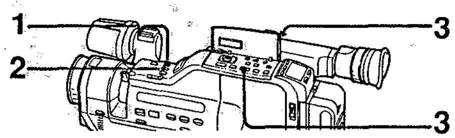
↑ :	Title scroll up mode
↓ :	Title scroll down mode
▯ :	Title reverse mode
▯↑ :	Title reverse and scroll up mode
▯↓ :	Title reverse and scroll down mode

To select the color

1 Press SUPERIMPOSE ON/OFF to display the title.
2 Press COLOR/MODE.
Each time you press the button, the color indication changes as follows:
WHT (white) → BLUE → GRN (green) → CYAN → RED
↑ BLK (black) ← YEL (yellow) ← VIO (violet) ←

Superimposing a title at the beginning for a few seconds

You can clear the title automatically after displaying it for a few seconds. (Auto-superimposing)

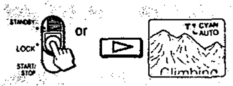


1 Press COLOR/MODE and select the display mode of the title in the standby or playback pause mode.

2 Press AUTO.

AUTO
T↑ CYAN
AUTO

3 Start recording or playback.
The title is displayed in the selected mode and disappears after a few seconds.

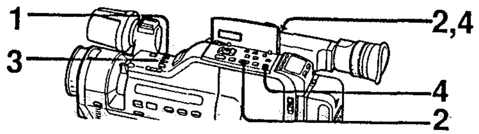


Superimposing Text

Superimposing Text

Superimposing a title for few seconds before the tape stops

You can display the title automatically for a few seconds after pressing START/STOP or ❚❚ PAUSE to stop recording or playback. (Auto-superimposing)



1 Press COLOR/MODE to select the display mode of the title.

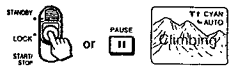
2 Start recording or playback.

STANDBY
LOCK
START/STOP
or
↑

3 Press AUTO.

AUTO
T↑ CYAN
AUTO

4 Press START/STOP or ❚❚ PAUSE at the point which you want to stop recording or playback. After the title is displayed for a few seconds, recording or playback stops.



The auto-superimposing is cancelled when

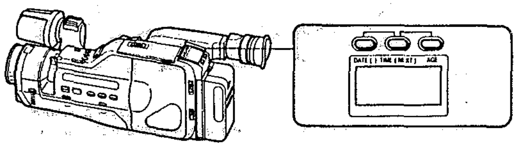
- The auto-superimposing is performed once.
- You press AUTO again before the superimposing is performed.
- Other operation (e.g. EDITSEARCH or various speed playback operation) is done in the standby or playback pause mode.
- You press SUPERIMPOSE ON/OFF before the superimposing is performed.

Storing a Birth Date in Your Camcorder

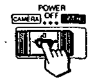
When you preset your child's birth date in the camcorder, you can put your child's age in years and months on your tape. You can also preset the date of an event. Once you enter the birth date of your child, the clock inside the camcorder will automatically update age of your child. You can superimpose the age anytime on your recording. You can preset up to three birth dates or events.

Before you begin Before you store a birth date in your camcorder, make sure that power source is connected, that the lithium battery is installed and that the date is correctly set.

How to store birth date To store a birth date in your camcorder, see the following example and procedure.
Example: To store "Aug. 3, 1987" in memory 2.



1 **Press the small green button and slide POWER to CAMERA.**



2 **Press the cover of the red button up until it snaps into STANDBY.**

STANDBY
LOCK
START/STOP

3 **Press TIME (NEXT) and AGE simultaneously for more than one and a half seconds until the "1" indication blinks in the display window.**

TIME (NEXT)
AGE

4 **Press DATE (+) to select 2.**
Each time you press DATE (+), the indication in the display window changes as follows:
1 → 2 → 3

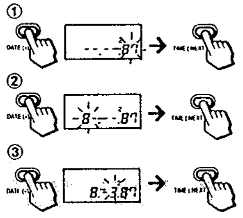
In the viewfinder, the indication changes as follows:
[1] BIRTHDAY → [2] BIRTHDAY
[3] EVENT *
* Although "EVENT" is displayed on [3], you can use it for age as well.
[1] and [2] can also be used for event.

(To be continued)

5 **Press TIME (NEXT).**
"--. --. 00" appears.

TIME (NEXT)
--.--.00

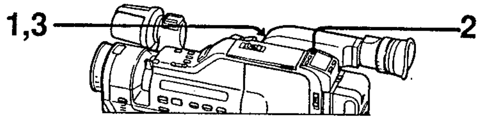
6 **Enter the birth date of your child.**
First adjust the blinking digits with DATE (+), and then press TIME (NEXT).
The age (year and month) appears when all the items are adjusted.



If you missed the correct number with DATE (+)	Keep pressing DATE (+). The indication changes as follows: Year: 00 → 01 → Current year Current year – (minus) 99 Month: 1 → 2 - - - → 12 → -- Day: 1 → 2 - - - → 31
To correct/change the setting	Follow the procedures from step 1 again.
To advance the digits faster	Keep DATE (+) pressed.
To preset the year before 1900	1 After step 5 on this page, keep pressing DATE (+) until the current year is displayed. 2 Press DATE (+) again. The year goes back 99 years. (example: 1990 → 1891) 3 Go to step 6 above.
When in 2000	"--. --. 01" is displayed in step 5 on this page. After that, it advances every year as "1902, 1903, ... ".

Putting an Age on Your Tape

You cannot add the age later during playing back or editing. Be sure to follow the procedure below.



1 During recording, press START/STOP at the point where you want to insert the age of a person or the elapsed time.
The camcorder is set in standby mode.

2 Press AGE to select the indication you want to record.
Each time you press AGE, the indication changes as follows:

No indication → [1] The first age → [2] The second age → [3] The third age → No indication

An item with no presetting is skipped.
The [1], [2], or [3] indication goes out after one second.

3 Press START/STOP.
Recording starts again.
The indication in the viewfinder is recorded with the picture.

To stop recording the age
Press AGE until the indication goes out.

To change the display while recording
Press AGE until the indication you want to record is displayed. Recording of the indication you selected starts when [1], [2], or [3] goes out.

To cancel the stored birth date
1 Perform steps 1 to 4 in "Storing a birth date in your camcorder" to select the memory number to be canceled.
2 Press TIME (NEXT) twice.
The month indication blinks.
3 Press DATE (+) until -- appears.
4 Press TIME (NEXT).
The birth date is deleted from the memory and is not displayed when you press AGE.

About memory back-up
The camcorder uses the lithium battery on the bottom to keep the birth date in memory. The lithium battery life is approximately one year.

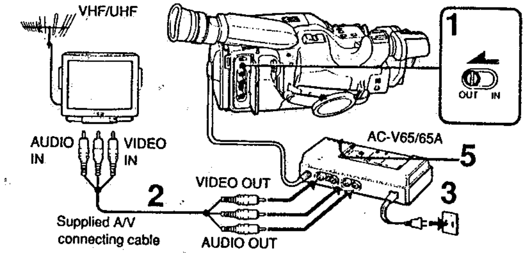
When you connect the camcorder to a TV during recording
If you do not use the data-screen function, the age indication will appear on the TV screen when the [1], [2], or [3] indication goes out in the viewfinder and recording starts.

Playing Back

In earlier section (page14), we've explained the basic connection to your TV. Here, we will talk about several other ways of connection to TV depending on the type of TV you have.
You can easily make a proper connection of camcorder and TV by using the supplied AC-V65/65A AC power adaptor.
If your TV does not have the video/audio inputs, see page 14.

Connecting a TV with Video/Audio Inputs

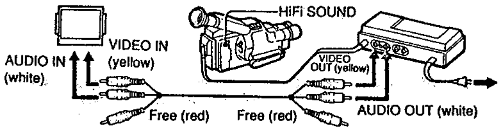
How to connect a TV with video/audio inputs
By connecting a stereo-type TV, you can enjoy stereo sound. Use the supplied AC-V65/65A AC power adaptor and A/V connecting cable to connect to the TV. Make sure that the TV is turned off to prevent damage to the speaker.



1 Set the IN/OUT selector to OUT.
2 Connect the A/V connecting cable to the TV.
3 Connect the AC power adaptor to a wall outlet.
4 Attach the connecting plate of the AC power adaptor to the camcorder.
5 Set the CHARGE/VTR selector on the AC power adaptor to VTR.

Note:
Perform only steps 4 and 5 when playing back a tape. You can keep the AC power adaptor and the TV connected when playing back a tape.

If your TV is a monaural type
Connect the TV and the AC power adaptor as illustrated below. Be sure to set HiFi SOUND on the camcorder to ● or 1.

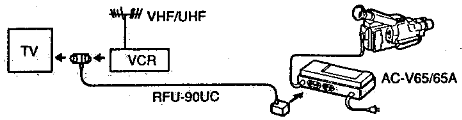


If you connect the camcorder directly to the monaural TV
1 Connect a yellow pin of the supplied A/V connecting cable to VIDEO and a white pin to AUDIO L of the camcorder.
2 Connect the other yellow pin of the supplied A/V connecting cable to VIDEO IN and the other white pin to AUDIO IN of the TV.
3 Set the IN/OUT selector on the camcorder to OUT.
4 Set HiFi SOUND on the camcorder to ● or 1.

Connecting to a TV via a VCR

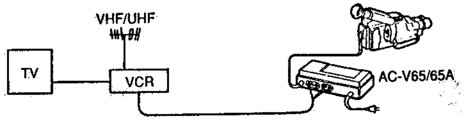
If your TV has no VIDEO/AUDIO input jacks

Disconnect the antenna connection between the TV and the VCR, and connect the RFU adaptor to the VHF/UHF input of the TV and VHF/UHF output of the VCR.



If your TV has VIDEO/ AUDIO input jacks

Connect the AC power adaptor to the VCR instead of to the TV. Set the input selector of the VCR to LINE, if available.

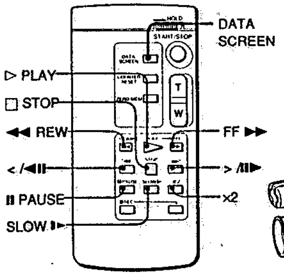


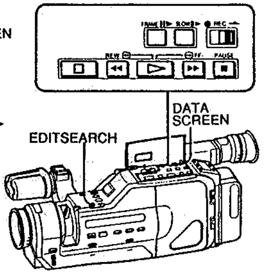
Playing Back a Tape in Various Speeds

The supplied wireless Remote Commander is useful to control the camcorder from a distance. When using it, be sure to set the ⊠ REMOTE COMMANDER switch to ON.

To make the same indications in the viewfinder on the TV

Press DATA SCREEN.
To turn the indications off, press it again.
This DATA SCREEN on TV will tell you which playback mode you are using.





To view the still picture (playback pause)

Press **II** PAUSE during playback.
II appears in the viewfinder.
To resume normal playback, press ▷ or **II**.

Note:
When the still picture mode lasts for 5 minutes or more, the camcorder automatically enters the stop mode.

To change the playback direction

Press < /◀II for the reverse or > /II▶ for the forward direction during playback. > on the camcorder is only for the forward direction.
–x1 or x1 appears in the viewfinder.

To view the picture at 1/5 speed (slow playback)

Select the playback direction with < /◀II or > /II▶, and then press SLOW I▶ during playback.
SLOW I▶ on the camcorder is only for the forward direction.
◀I or I▶ appears in the viewfinder.
To resume normal playback, press ▷.

Note:
When slow playback lasts for 1 minute or more, the forward or reverse playback at the normal speed starts automatically, depending on the tape direciton.

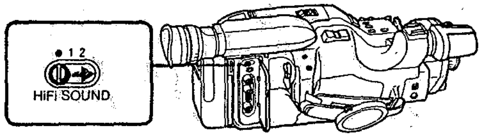
To view the picture at double speed (only on the Commander)

Select the playback direction with < /◀II or > /II▶, and then press x2 on the Commander.
–x2 or x2 appears in the viewfinder.
To resume normal playback, press ▷.

To view the picture frame-by-frame	In the still picture mode, press < /◄II or > /II►. Each time you press the button, the picture appears by a frame. II► on the camcorder is only for the forward direction. ◄II or II► appears in the viewfinder. If you keep pressing ◄II/II►, playback at 1/30 speed starts. To resume normal playback, press ▷.
To locate the desired scene (picture search)	Keep pressing ◄◄ or ►► during playback or in the still picture mode. ⊖ or ⊕ appears in the viewfinder. To resume normal playback, release the button.
To locate the desired scene quickly (skip scan)	Press ◄◄ during rewinding or ►► during advancing the tape rapidly. ⊖ or ⊕ appears in the viewfinder. To resume normal playback, press ▷.
About the playback picture	During the various playback modes, streaks appear on the screen.
About the sound during playback in the various playback modes	The sound can be heard during playback at double speed in forward direction, but sound may not be clear as normal speed playback.
If the still picture, frame-by-frame picture, or slow playback picture is noisy	Set the camcoder into the slow playback mode, and press "+" or "–" side of EDITSEARCH on the camcorder until you get the best picture.
If the still picture shakes	Press "+" or "–" side of EDITSEARCH on the camcorder until the most stable picture appears.

Playing Back the Dual Sound Recorded Tape

Normally set HiFi SOUND to ● position.
When the dual sound recorded tape is played back, set HiFi SOUND to the desired sound, 1 or 2.



Note:
When you connect the TV using the RFU adaptor, or when the TV or VCR is a monaural type, set HiFi SOUND to 1 or 2.

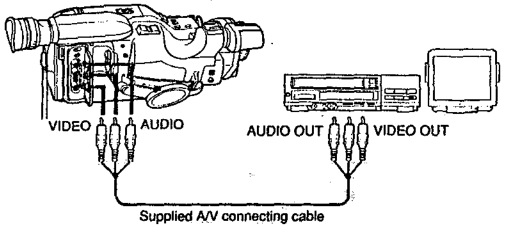
Recording

Recording from a VCR or TV

You can record a tape from another VCR or a TV program from the TV both equipped with video/audio outputs.

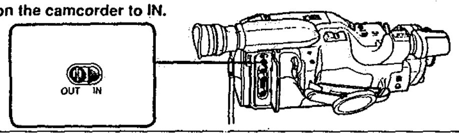
How to connect

Disconnect the RFU adaptor from the AC power adaptor if it is connected.
Make connection using the supplied A/V cable as follows.



How to record

1 **Set the IN/OUT selector on the camcorder to IN.**



2 **Turn on the VCR or TV.**

3 **Paly back the tape or select the TV channel to be recorded.**

4 **Set POWER of the camcorder to VTR.**

5 **Insert a tape and slide ● REC.**
Recording starts. You can monitor the picture being recorded in the viewfinder.

If your equipment is a monaural type

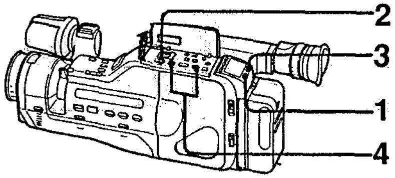
1 Connect the yellow pin to VIDEO and the white pin to AUDIO L of the camcorder.
2 Connect the yellow and white pins to AUDIO/VIDEO OUT of the VCR or TV.

Using the Tape Counter

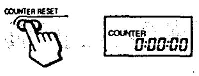
During recording or playback, the digits on the counter indicate the actual recording or playback time.

To count the whole tape Press COUNTER RESET at the beginning of the tape so that the counter shows "0:00:00". Write down the counter reading at a particular point so that you can easily find that point later by referring to the tape counter.

To return to a pre-registered point



1 During playback, press COUNTER RESET at the point you later want to locate.
The counter shows "0:00:00".

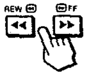

COUNTER RESET
COUNTER
0:00:00

2 Press □ when the playback has finished, as usual.

3 Press ZERO MEM.
The "ZERO MEM" indication blinks in the display window.

ZERO MEM
0:15:20

4 Press ◀◀ or ▶▶.
The tape rewinds or advances and stops automatically when the counter reaches approximately zero.



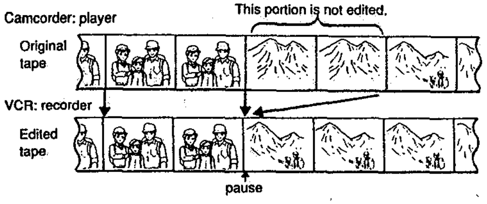
Notes on the tape counter and the ZERO MEM button

- Something must be reocrded on the tape in order for the tape counter to function. Tape counter will not work on blank tape.
- The counter reading and the point of the tape may not correspond exactly. Use the counter as a guide.
  There will be a time lag of several seconds especially when you repeat fast-forward running/rewinding and play back the tape recorded in LP and SP modes mixed.
- Be sure to press ZERO MEM after you stop the tape. It does not function during recording or playback.
- The ZERO MEM mode is cancelled automatically once the tape is rewound or sent forward to the point where you pre-registered.

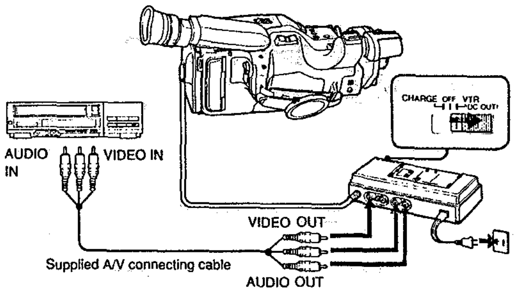
Editing

Editing Tapes with a VCR

You can edit a tape with an additional 8 8mm, β Betamax or VHS VHS format VCR. Also you can superimpose and record the titles.

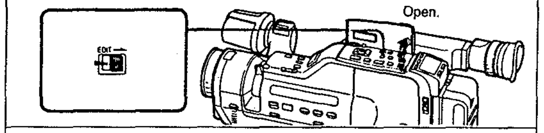

Camcorder: player
This portion is not edited.
Original tape
VCR: recorder
Edited tape
pause

How to connect Make connections using the supplied A/V cable and set CHARGE/VTR on the AC power adaptor to VTR. Set the input selector of the VCR to LINE, if available.


AUDIO IN
VIDEO IN
CHARGE OFF VTR
DC OUT
VIDEO OUT
Supplied A/V connecting cable
AUDIO OUT

How to edit

1. Insert a tape to be recorded into recording VCR.
2. Slide EDIT on the camcorder to the direction of the arrow.

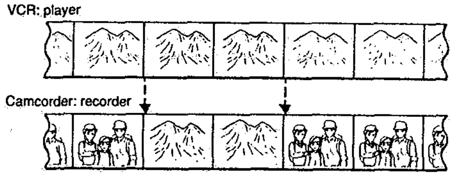


3. Set POWER of the camcorder to VTR, then insert the recorded tape.
4. Play back a tape on the camcorder until you locate the point where you want to start editing, then set the camcorder to the playback pause mode.
5. On the recording VCR, locate the recording starting point and set the VCR to the recording pause mode.
6. Press II of the camcorder and VCR simultaneously to start editing.

To edit more scenes	Repeat steps 4 to 6.
To stop editing momentarily	Press II on the recording VCR.
To stop editing	Press ☐ of the camcorder and VCR.
If your VCR is a monaural type	Connect it referring to "If your TV is a monaural type" on page 50.
To record a title	You can superimpose and record the titles on the picture while editing. For details, refer to pages 41 to 46.
Note on auto-superimposing	When performimg synchronized editing using the ℭ connector, you cannot superimpose a title at the end of the editing, even if you press AUTO.
If you use the DATA SCREEN function	The indications displayed on the TV screen will also be recorded.
Use of the EDIT switch	When you set EDIT to the direction of the arrow (EDIT ON), you can keep picture and sound deteriorations resulting from editing kept to the minimum. Avoid using the edited tape for multiple generations of editing. After editing, be sure to set this switch in the opposite direction of the arrow (EDIT OFF).

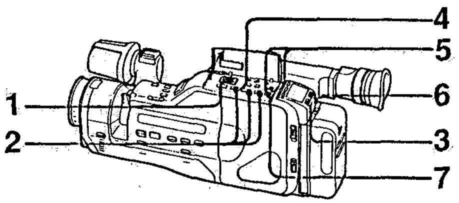
Replacing Recordings on a Tape (Insert Recording)

You can insert a new scene from a VCR on your originally recorded tape by setting the starting point and ending point.

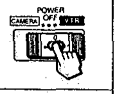


How to connect	Connections are the same as in "Recording from a VCR or TV (page 54)." Before you begin replacing recordings, **set the VCR to the playback pause mode at the beginning of the scene to be recorded.** Set CHARGE/VTR on the AC power adaptor to VTR.

How to replace recordings

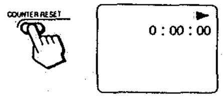


1. **Press the small green button and slide POWER to VTR.**
   The counter appears in both the viewfinder and the display window.

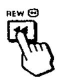


2. **Locate the end point where the insert should end by pressing ◀◀ or ▶▶ during playback.**

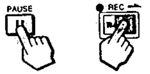
3. **At the end point, press COUNTER RESET.**
   The counter is reset to "0:00:00".



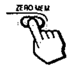
4 **Locate the start point where the insert should begin by pressing ◀◀ .**

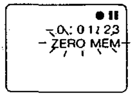


5 **At the start point, set the camcorder into recording pause mode.**

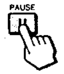


6 **Press ZERO MEM.**
The end point of the insert is stored in memory.





7 **Press II of both units to start insert editing.**
You can monitor the picture being inserted in the viewfinder screen.



The insert recording will stop automatically near the zero point on the counter.

To change the end point

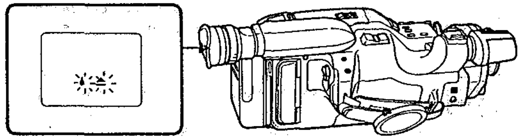
Press ZERO MEM so that the ZERO MEM indication disappears, and operate again from step 2.

Maintenance Information

Moisture Condensation

If the camcorder is brought directly from a cold place to a warm place, moisture may condense inside the camcorder, on the surface of the tape or on the lens. In this condition, the tape may stick to the head drum and be damaged or the unit may not operate correctly. To prevent possible damage under these circumstances, the camcorder is furnished with moisture sensors. However, take the following precautions.

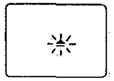
If moisture condenses inside the unit



Moisture is present inside the camcorder when:
- The ♦ indication in the viewfinder blinks. When the tape is inserted, the ≜ indication also blinks.
- Several beeps also sound continuously for five seconds when the tape is inserted and the BEEP switch is set to ON.

In such cases, no function except for tape ejection works.
Eject the tape, turn off the camcorder and leave it with the cassette holder open for at least 1 hour.
The camcorder can be used again if the ♦ indication does not appear when the power is turned on again.

If moisture condenses on the surface of the tape



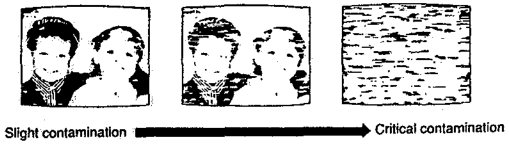
Moisture is present on the surface of the tape when:
- The ≜ indication blinks inside the viewfinder when the tape is inserted and a tape transport button (▷, ◀◀, etc.) is pressed.
- Several beeps also sound continuously for five seconds when the BEEP switch is set to ON.

In such cases, no function except for tape ejection works.
Eject the tape and let the camcorder and the tape sit for at least 1 hour.
The tape can be used again if the ≜ indication does not appear when the tape is inserted and a tape transport button is pressed.

If moisture condenses on the lens

No caution indications will appear, but the picture becomes dim.
Turn off the power and leave the camcorder unused for at least 1 hour.

Video Head Cleaning



To ensure clear picture, clean the video heads periodically

When playback pictures become noisy or hardly visible, the video heads may be contaminated.
In such case,

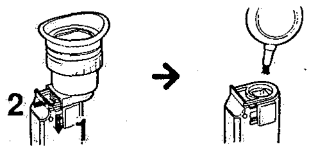
1 Clean the video heads with the Sony V8-25CLH cleaning cassette (not supplied), referring to its instructions.
2 After cleaning, check if the picture is clear by recording or playing back with an ordinary tape.
3 If the picture is still noisy, repeat cleaning. (Do not repeat cleaning more than 5 times.)

Caution:
Do not use a commercially available wet-type cleaning cassette. It may damage the video heads.

Note:
If the V8-25CLH cleaning cassette is not available in your area, consult your Sony service facility.

Viewfinder Cleaning

Detach the eyecup as illustrated and clean the surface of the screen with a commercially available blower.



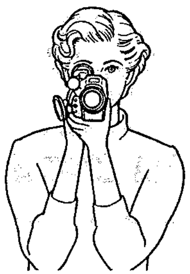
Tips for Better Camera Recording

How to Achieve Better Camera Recording

Take a good posture for shooting

For hand-held shots, it is important to hold the camcorder properly.

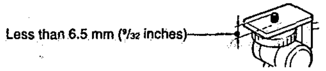
- Hold the camcorder firmly and secure it with the grip belt so that you can easily manipulate the camcorder with your thumb.
- Place your right elbow firmly against your side.
- Place your left hand under the camcorder to support it. When adjusting the focus manually, make sure the camcorder does not move.
- Stand opposite to the subject and let your feet take a comfortable stance.
- Place your eye firmly against the viewfinder eyecup.
- Do not cover the infrared beam window.



Use a tripod

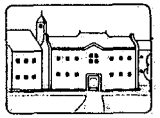
If you have a tripod for a still camera, you can also use it with the camcorder. If a tripod is not available, try placing the camcorder on a tabletop or any other flat surface of suitable height.

Caution:
When attaching a tripod not manufactured by Sony, the length of the camera mounting screw must be less than 6.5 mm. Otherwise, the screw may damage the inner part of the camera.



Keep the horizontal plane level

You can easily determine the horizontal plane by using the viewfinder frame as a reference.



Plan ahead

If you are going to edit the tape after recording, shoot the scene a little longer to make the editing easier.

If you are not going to edit the tape after recording, First record a title and then use the START/STOP button to make a smooth recording.

Shoot with the sun behind you

When the light source is behind the subject, or in the following situations, the subject will be recorded too dark and the background too light.
- The subject is indoors and there is a window behind the subject.
- Bright sources such as fluorescent or incandescent lamps are included in the scene.
- You are shooting a person wearing white or shiny clothes in front of a white background.
  In this case, the face will be recorded too dark.

Use video lights in the dark

To get the best colors, you must maintain a sufficient light level.
We recommend photography lamps or halogen lamps. For best results, we recommend Sony video lights since their weight and low heat output levels allow safe and direct connection to the camcorder.
Do not point the light at the camcorder. The high heat from the light can warp the casing of the camcorder.
For detailed instructions on proper use of the light, read its instruction manual.

Get familiar with brightness levels

Using the following chart as a reference, take a few minutes to familiarize yourself with brightness levels to improve your recording technique.

Situation	Brightness	Condition
Snow-covered mountains Snow fields Sandy beach, clear day in summer	Unit: lux	ND filter recommended
Clear day, mid day (100,000 lux) Clear day, mid-afternoon (35,000) Overcast day, mid-day (32,000)	100,000	Normal recording
	10,000	
Overcast day, one hour after sunrise (2,000) Office lit by fluorescent lamps, near window (1,000) Clear day, one hour before sunset (1,000) Department store counter (500 – 700) Station wicket (650) Office lit by fluorescent lamps (400 – 500) Room lit by two 30 W fluorescent lamps (300) Subway station platform (300)	1,000 500 300	
Arcade at night (150 – 200)	100	
Theater lobby (15 – 35) Candlelight (10 – 15)	10	Video light recommended

Using Your Camcorder Abroad

Each country has its own electricity system and TV color system. Before using your camcorder abroad, check the following points.

Power Sources

You can use your camcorder in any country with the supplied AC power adaptor within 110 V to 240 V AC, 50/60 Hz.

Differences in Color System

You can view the playback picture in the viewfinder. However, if you want to view the playback picture on a TV, it must be an NTSC system based TV. Check the following list (in alphabetical order).

NTSC system countries
Bahama Islands, Bolivia, Canada, Central America, Chile, Colombia, Ecuador, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, The Philippines, U.S.A., Venezuela, etc.

PAL system countries
Australia, Austria, Belgium, China, Denmark, Finland, Germany (former West Germany), Great Britain, Holland, Hong Kong, Italy, Kuwait, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Thailand, etc.

PAL-M system country
Brazil

PAL-N system countries
Argentina, Paraguay, Uruguay

SECAM system countries
Bulgaria, France, Guiana, Hungary, Iran, Iraq, Monaco, Poland, Soviet Union, etc.

Precautions

On operation

- Operate the camcorder on 6.0 V (battery pack), 7.5 V (AC power adaptor), or 9.0 V (alkaline batteries).
- For DC or AC operation, use the accessories recommended in this manual.
- Should any solid object or liquid fall into the casing, unplug the camcorder and have it checked by qualified personnel before operating it any further.
- Do not hold the camcorder by the viewfinder or the microphone.
- Avoid rough handling or mechanical shock. Be particularly careful of the lens.
- Keep the lens cap on the lens when not using the camera.
- Do not wrap up the camcorder and operate it since heat may build up internally.
- Keep the camcorder away from strong magnetic fields or mechanical vibration.
- Do not put the camcorder on the sand.

On care

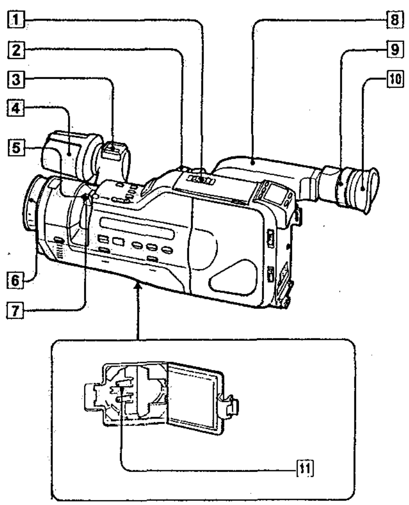
- When the unit will not be used for a long time, disconnect the power source and remove the tape. Periodically turn on the power, operate the camera section and player section and play back a tape for about 3 minutes.
- Clean the lens with a soft brush to remove dust. If there are fingerprints on it, remove them with a soft cloth.
- Clean the camcorder body with a dry, soft cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent which may damage the finish.

Note on copyright

Television programs, films, video tapes and other materials may be copyrighted. Unauthorized recording of such materials may be contrary to the provision of the copyright laws.

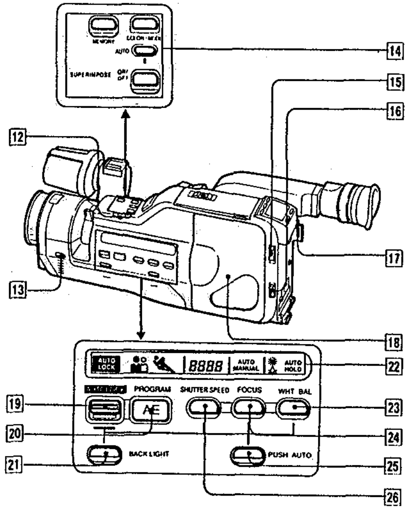
Identifying the Parts

For details on the use of each part, refer to the pages indicated in the circle.

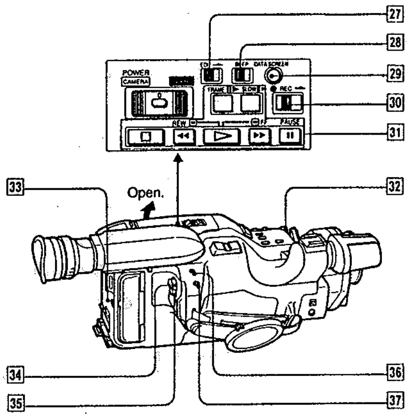

1
2
3
4
5
6
7
8
9
10
11

1. **Power switch**
   CAMERA: for camera recording
   VTR: for playing back or editing tapes
   OFF: power off
2. **Power zoom button ㊲**
3. **Accessory shoe ㉗**
4. **Built-in microphone (stereo)**
5. **Macro set button ㊳**
6. **Lens hood/focus ring ㉚ ㊴**
7. **Zoom lever ㉚ ㊲**
8. **Viewfinder**
9. **Viewfinder lens adjustment ring ⑪**
10. **Eyecup**
11. **Lithium battery compartment ❽**

Identifying the Parts


MEMORY
COLOR/MODE
AUTO
SUPERIMPOSE
ON/OFF
AUTO LOCK
8888
AUTO MANUAL
AUTO HOLD
PROGRAM
AE
SHUTTER SPEED
FOCUS
WHT BAL
BACK LIGHT
PUSH AUTO
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26

12. **EDITSEARCH (and ⊖ recording review) buttons ㉓ – ㉖**
13. **FADER button ㊵ ㊶**
14. **SUPERIMPOSE buttons ㊷**
    MEMORY button
    COLOR/MODE button
    AUTO button
    SUPERIMPOSE ON/OFF button
15. **EJECT (cassette eject) knob ⑩ ⑬**
16. **BATT (battery eject) knob ❼**
17. **Camera recording/battery/tape end lamp**
18. **Cassette holder**
19. **AUTO LOCK switch ⑫ ㉘**
20. **PROGRAM AE (program auto exposure) button ㉟ ㊱**
21. **BACK LIGHT button ㉛**
22. **Display window (72)**
23. **WHT BAL (white balance) button ㉝**
24. **FOCUS button ㉚**
25. **PUSH AUTO button ㉚**
26. **SHUTTER SPEED button ㉞**


27
28
29
30
31
32
33
34
35
36
37
POWER
CAMERA
EDIT
BEEP
DATA SCREEN
REC
FRAME
SLOW
REW
FF
PAUSE
Open.

27 **EDIT switch (57)**

28 **BEEP switch ⑪**

29 **DATA SCREEN button (52)**

30 **● REC (recording) button (54)**

31 **Tape transport buttons (52)**
- ▷ (playback)
- ▶▶ FF (fast-forward)
- ◀◀ REW (rewind)
- ☐ (stop)
- II PAUSE (pause)
- >/II▶ FRAME (forward direction/frame-by-frame in forward direction)
- I▶ SLOW (slow playback)

32 **Camera recording/battery/tape end lamp**

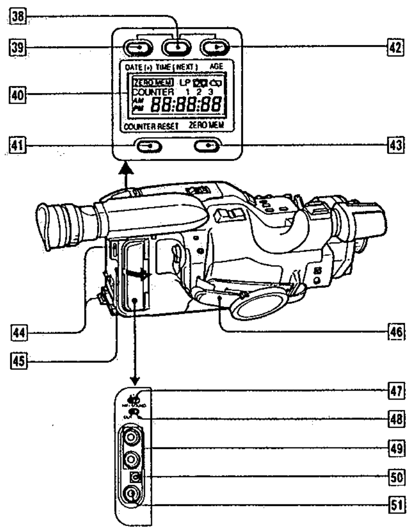
33 **Battery mounting surface ⑦**

34 **STANDBY switch**

35 **START/STOP button ⑬**

36 **REMOTE jack (stereo mini-minijack) ㉗**

37 **Ω (headphones) jack (stereo minijack) ㉖**


38
39
40
41
42
43
44
45
46
47
48
49
50
51
DATE (+)
TIME (NEXT)
AGE
ZERO MEM
COUNTER
LP
88:88:88
COUNTER RESET
ZERO MEM

38 **TIME (NEXT) button ⑨ ㉒ ㊼**

39 **DATE (+) button ⑨ ㉒ ㊼**

40 **Display window (72)**

41 **COUNTER RESET button ㉕ (55) (58)**

42 **AGE button ㊼ ㊾**

43 **ZERO MEM (memory) button ㉕ (55) (59)**

44 **Hooks for shoulder strap**

45 **REMOTE COMMANDER ON/OFF switch ⑯ (52)**

46 **Grip belt**

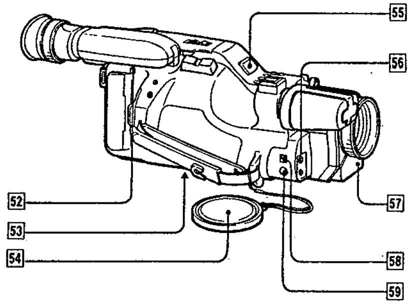
47 **HiFi SOUND selector (53)**

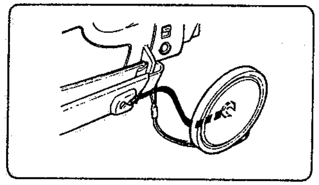
48 **IN/OUT (video and audio input/output) selector ㊿ (54)**

49 **AUDIO L/R input/output jacks (phono jacks) (54)**

50 **RFU DC OUT (RFU adaptor DC output) jack (special minijack)**

51 **VIDEO input/output jack (phono jack) (54)**


55
56
52
53
54
57
58
59



52 PUSH SLIDE (viewfinder positioning) button ⑫

53 Tripod receptacle (bottom)

54 Lens cap

55 Remote control sensor ⑯

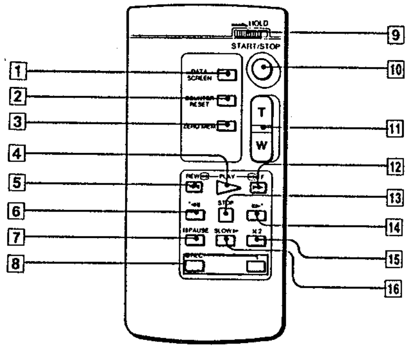
56 MIC (microphone) jack (stereo minijack) and DC OUT (power output) jack (mini-minijack) ㉗

57 Infrared beam window ⑬

58 BUILT-IN MIC (microphone) switch ㉒

59 REC (recording) START/STOP button (for low-position recording) ㉒

Identifying the Parts


HOLD
START/STOP
DATA SCREEN
COUNTER RESET
ZERO MEM
T
W
REW
PLAY
FF
STOP
PAUSE
SLOW
x2
REC
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

1 DATA SCREEN button (52)

2 COUNTER RESET button

3 ZERO MEM (memory) button

4 ▷ PLAY (playback) button (52)

5 ◀◀ REW (rewind) button (52)

6 < /◀II (reverse direction/reverse frame) button* (52)

7 II PAUSE button (52)

8 ● REC (Recording) buttons

9 HOLD switch ⑰

10 START/STOP button

11 Power zoom button

12 ▶▶ FF (fast forward) button (53)

13 □ STOP button (52)

14 > /II▶ (forward direction/forward frame) button (52)

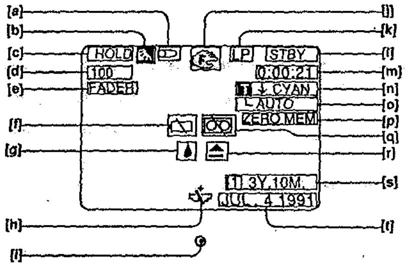
15 x 2 (double speed playback) button* (52)

16 SLOW I▶ (slow playback) button (52)

Note:
The * indicates the functions which are operable only with the Commander.

Indications inside the Viewfinder and the Display Window

Inside the Viewfinder

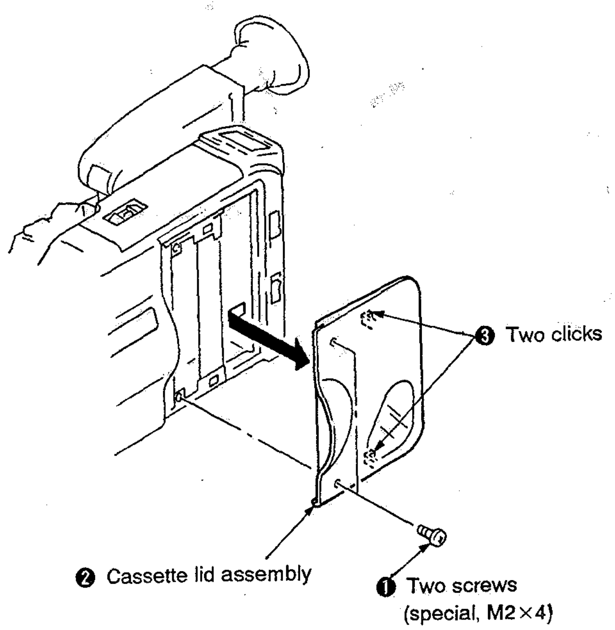

[a]
[b]
[c]
[d]
[e]
[f]
[g]
[h]
[i]
[j]
[k]
[l]
[m]
[n]
[o]
[p]
[q]
[r]
[s]
[t]
HOLD
100
FADER
LP
STBY
0:00:21
1 ↓ CYAN
└ AUTO
ZERO MEM
1 3Y 10M
JUL 4 1991

[a] WIND is selected. (◁▭)
[b] BACK LIGHT is pressed. (▣)
[c] White balance mode. (☀, ☼, HOLD)
[d] PROGRAM AE setting (,) *or* Shutter speed
[e] FADER is pressed.
[f] "Exchange battery." (▭)
[g] *Moisture* has condensed. (●)
[h] "Replace lithium battery" (◁▷)
[i] Lights up during recording.
When blinking: "Exchange battery or tape."
[j] *Manual* focusing (F)
[k] Playback mode (LP)
[l] Tape transport mode
[m] Tape counter
[n] *Title mode and* color
[o] Auto-superimposing is *selected.* (└ AUTO)
[p] ZERO MEM is pressed.
[q] "*Exchange* tape or no tape inside." (▭)
[r] "Trouble has occurred" (⏏) *or* "Clean video heads." (●)
[s] Age
[t] Date or time

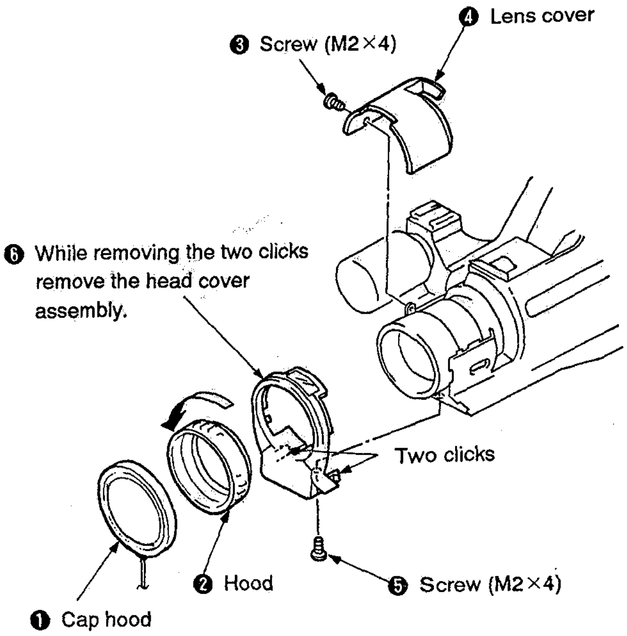
SECTION 2
DISASSEMBLY

2-1. REMOVAL OF CASSETTE LID ASSEMBLY

Note: When mounting, fit the two clicks ❸ into holes completely, then clamp two screws ❶.

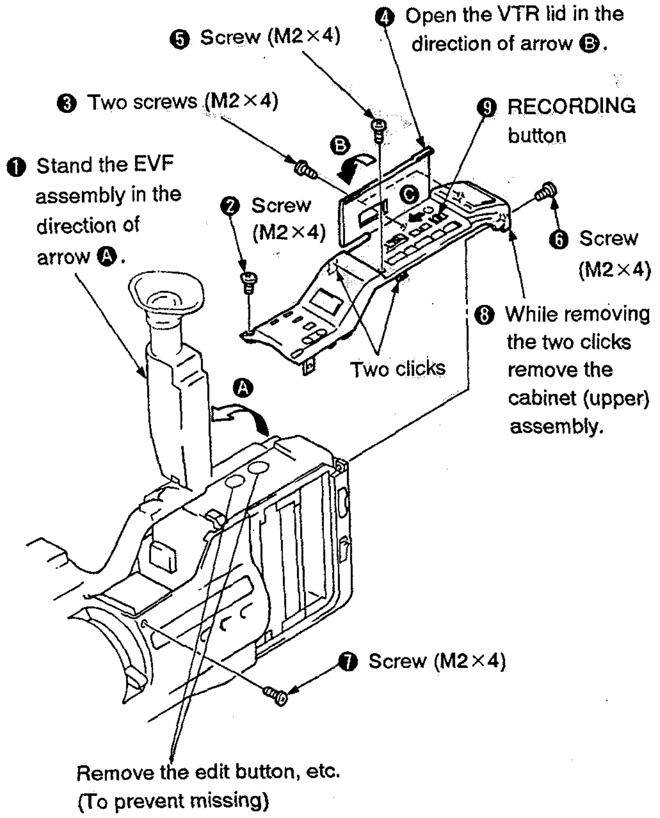

❸ Two clicks
❷ Cassette lid assembly
❶ Two screws
(special, M2×4)

2-3. REMOVAL OF HEAD COVER ASSEMBLY

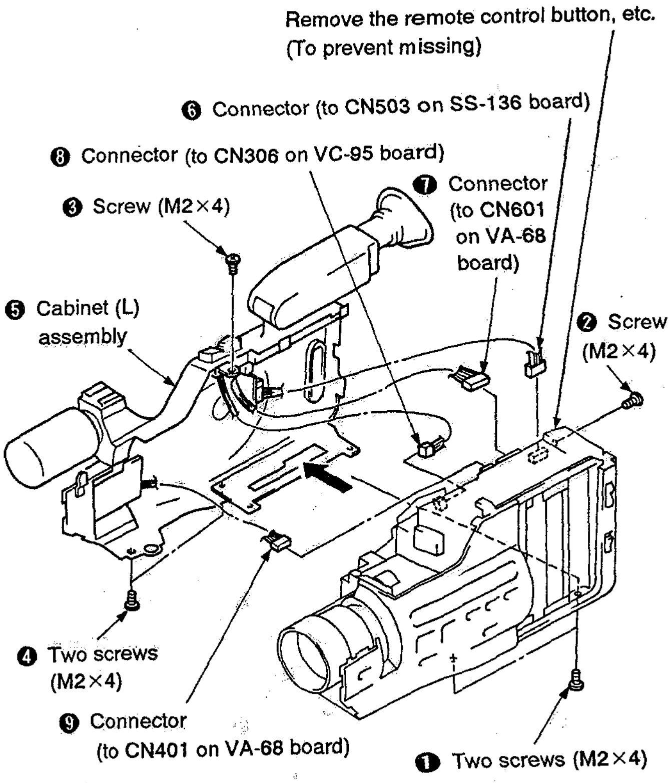

❹ Lens cover
❸ Screw (M2×4)
❻ While removing the two clicks
remove the head cover
assembly.
Two clicks
❷ Hood
❺ Screw (M2×4)
❶ Cap hood

2-2. REMOVAL OF CABINET (UPPER) ASSEMBLY

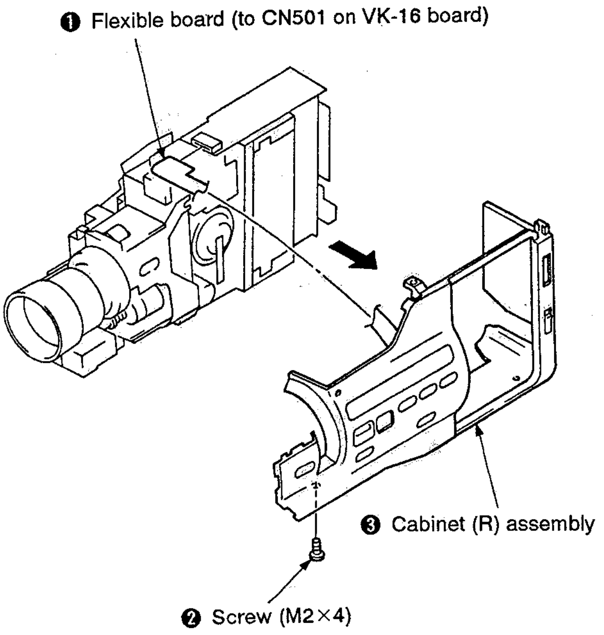
Note: When mounting, gather up RECORDING button ❾ in the direction of arrow Ⓒ.


❺ Screw (M2×4)
❹ Open the VTR lid in the
direction of arrow Ⓑ.
❸ Two screws (M2×4)
❾ RECORDING
button
❶ Stand the EVF
assembly in the
direction of
arrow Ⓐ.
Ⓑ
❷ Screw
(M2×4)
Ⓒ
❻ Screw
(M2×4)
❽ While removing
the two clicks
remove the
cabinet (upper)
assembly.
Two clicks
Ⓐ
❼ Screw (M2×4)
Remove the edit button, etc.
(To prevent missing)

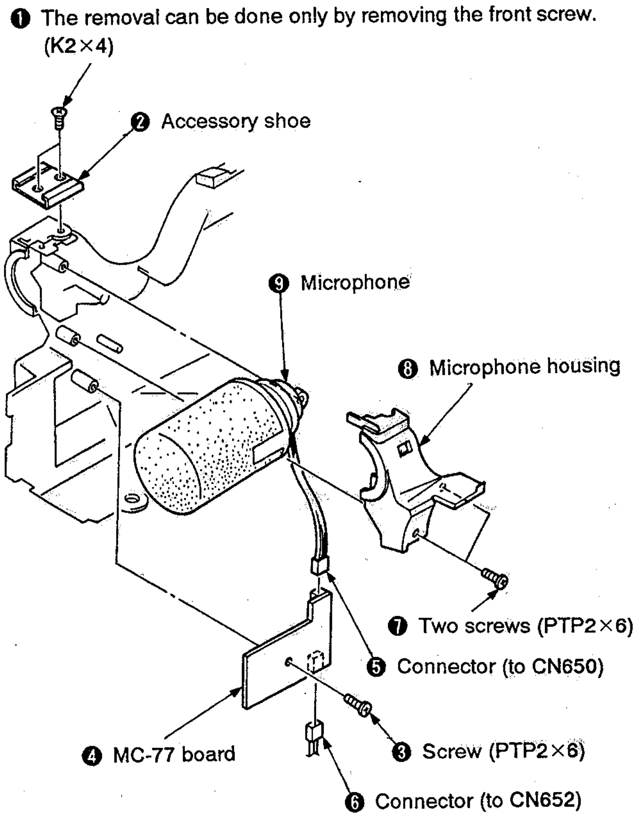
2-4. REMOVAL OF CABINET (L) ASSEMBLY


Remove the remote control button, etc.
(To prevent missing)
❻ Connector (to CN503 on SS-136 board)
❽ Connector (to CN306 on VC-95 board)
❼ Connector
(to CN601
on VA-68
board)
❸ Screw (M2×4)
❺ Cabinet (L)
assembly
❷ Screw
(M2×4)
❹ Two screws
(M2×4)
❾ Connector
(to CN401 on VA-68 board)
❶ Two screws (M2×4)

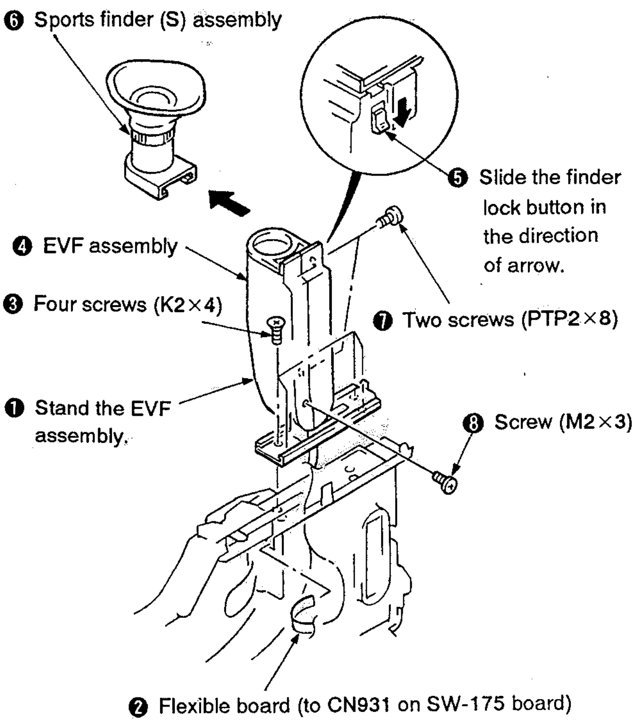
2-5. REMOVAL OF CABINET (R) ASSEMBLY

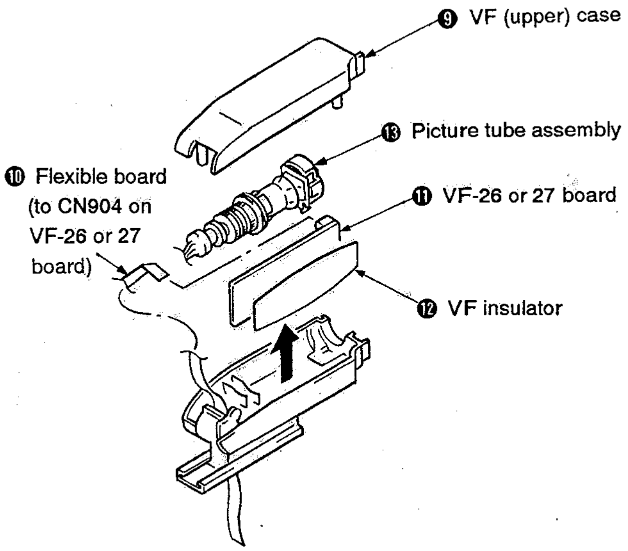

❶ Flexible board (to CN501 on VK-16 board)
❸ Cabinet (R) assembly
❷ Screw (M2×4)

2-6. REMOVAL OF MICROPHONE (MC-77 BOARD)

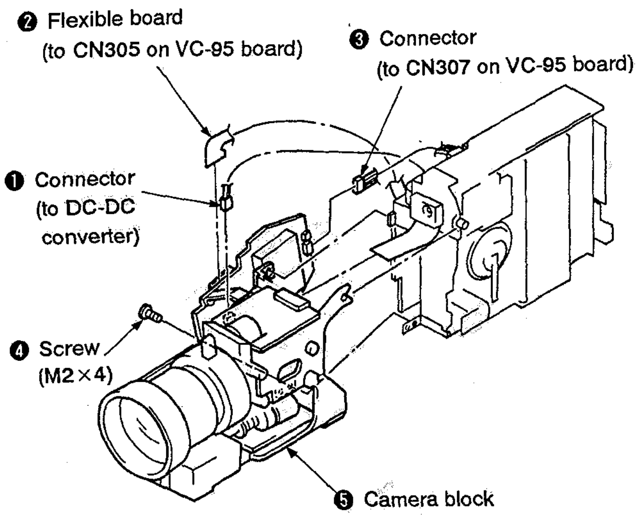

❶ The removal can be done only by removing the front screw. (K2×4)
❷ Accessory shoe
❾ Microphone
❽ Microphone housing
❼ Two screws (PTP2×6)
❺ Connector (to CN650)
❹ MC-77 board
❸ Screw (PTP2×6)
❻ Connector (to CN652)

2-7. REMOVAL OF EVF ASSEMBLY

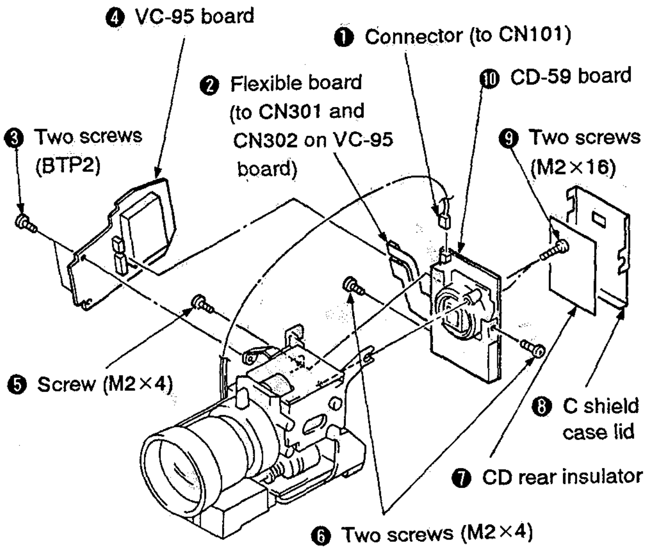

❻ Sports finder (S) assembly
❺ Slide the finder lock button in the direction of arrow.
❹ EVF assembly
❸ Four screws (K2×4)
❼ Two screws (PTP2×8)
❶ Stand the EVF assembly.
❽ Screw (M2×3)
❷ Flexible board (to CN931 on SW-175 board)

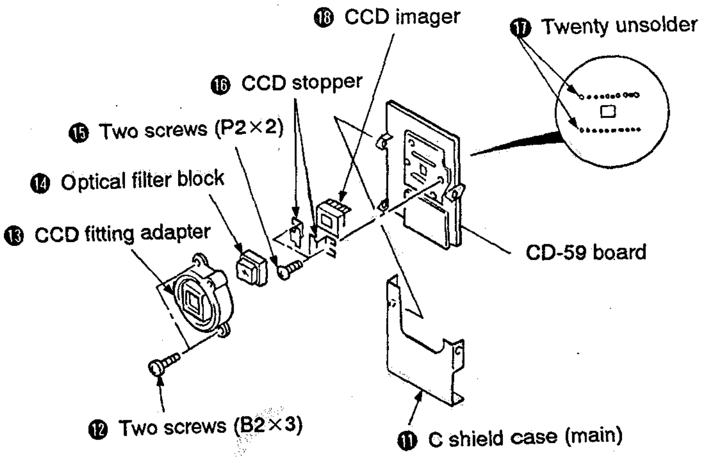

❾ VF (upper) case
⓭ Picture tube assembly
❿ Flexible board (to CN904 on VF-26 or 27 board)
⓫ VF-26 or 27 board
⓬ VF insulator

2-8. REMOVAL OF CAMERA BLOCK

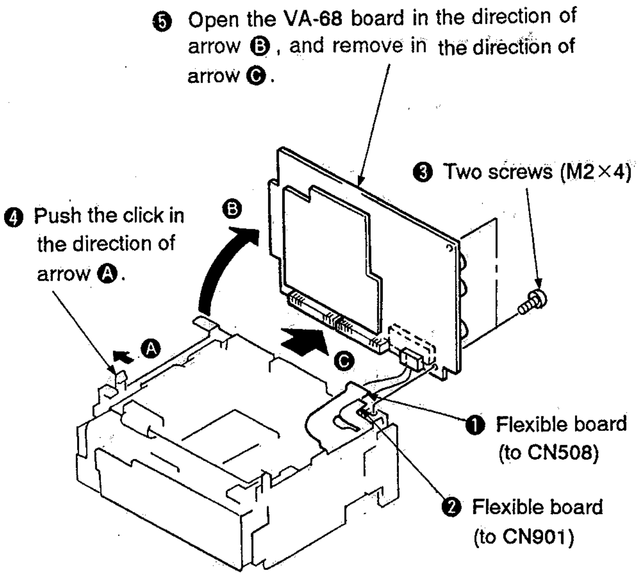

❷ Flexible board
(to CN305 on VC-95 board)
❸ Connector
(to CN307 on VC-95 board)
❶ Connector
(to DC-DC
converter)
❹ Screw
(M2×4)
❺ Camera block

2-9. REMOVAL OF CCD IMAGER (CD-59 BOARD)

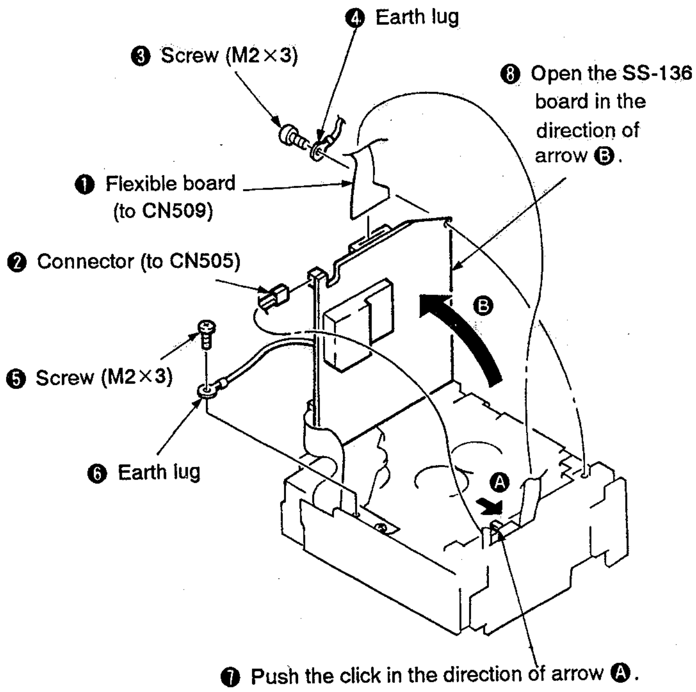

❹ VC-95 board
❶ Connector (to CN101)
❷ Flexible board
(to CN301 and
CN302 on VC-95
board)
❿ CD-59 board
❸ Two screws
(BTP2)
❾ Two screws
(M2×16)
❺ Screw (M2×4)
❽ C shield
case lid
❼ CD rear insulator
❻ Two screws (M2×4)


⓲ CCD imager
⓱ Twenty unsolder
⓰ CCD stopper
⓯ Two screws (P2×2)
⓮ Optical filter block
⓭ CCD fitting adapter
CD-59 board
⓬ Two screws (B2×3)
⓫ C shield case (main)

2-10. REMOVAL OF VA-68 BOARD

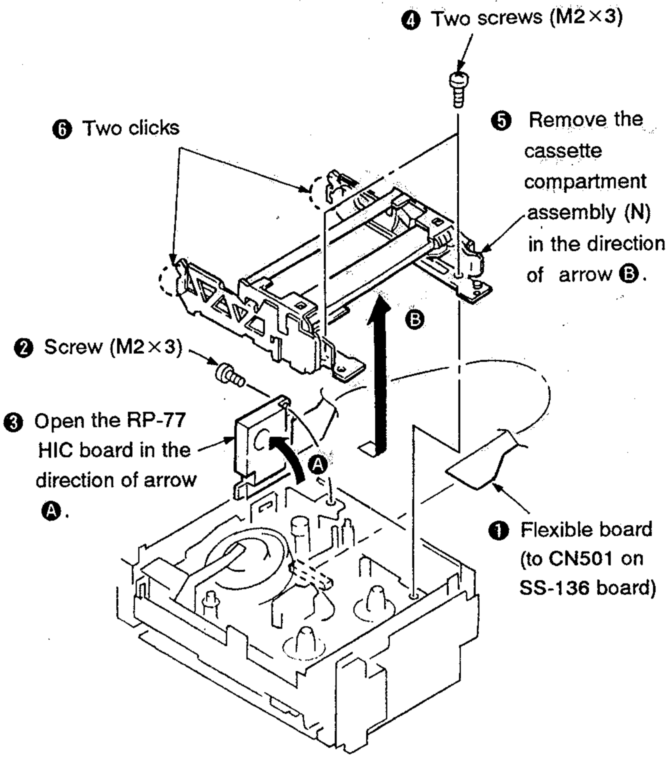

❺ Open the VA-68 board in the direction of arrow Ⓑ, and remove in the direction of arrow Ⓒ.
❸ Two screws (M2×4)
❹ Push the click in the direction of arrow Ⓐ.
Ⓑ
Ⓐ
Ⓒ
❶ Flexible board (to CN508)
❷ Flexible board (to CN901)

2-11. OPENING OF SS-136 BOARD


❹ Earth lug
❸ Screw (M2×3)
❽ Open the SS-136 board in the direction of arrow Ⓑ.
❶ Flexible board (to CN509)
❷ Connector (to CN505)
Ⓑ
❺ Screw (M2×3)
❻ Earth lug
Ⓐ
❼ Push the click in the direction of arrow Ⓐ.

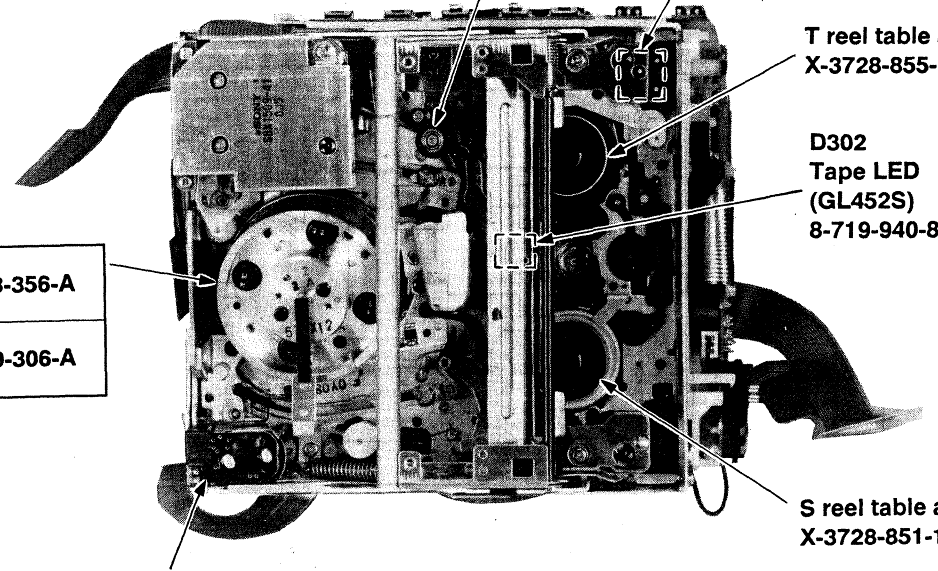
2-12. REMOVAL OF CASSETTE COMPARTMENT ASSEMBLY (N)

Note: When mounting, fit the two clicks ❻ into completely, then clamp two screws ❹.


❹ Two screws (M2×3)
❻ Two clicks
❺ Remove the cassette compartment assembly (N) in the direction of arrow Ⓑ.
Ⓑ
❷ Screw (M2×3)
❸ Open the RP-77 HIC board in the direction of arrow Ⓐ.
Ⓐ
❶ Flexible board (to CN501 on SS-136 board)

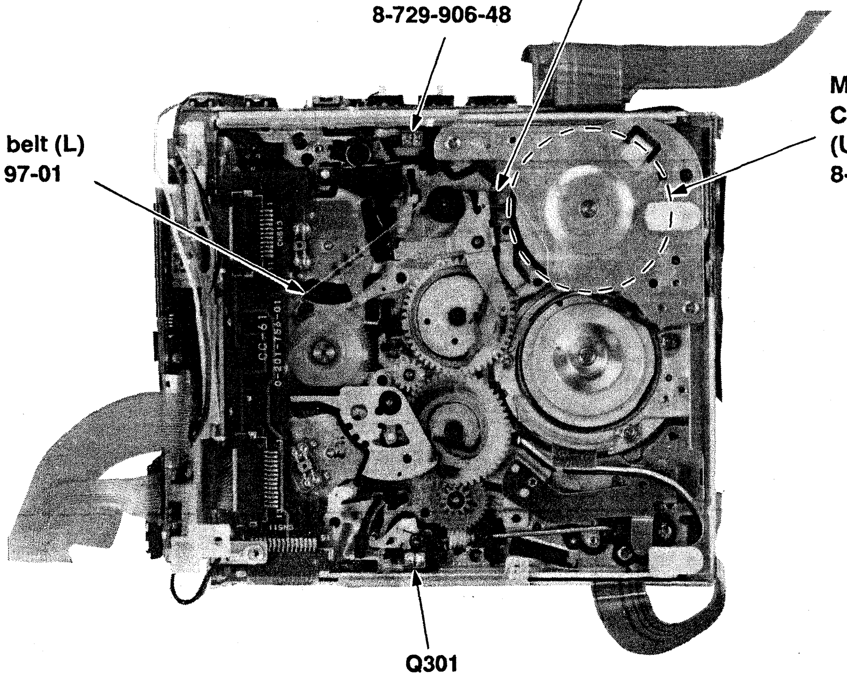
2-13. INTERNAL VIEWS

— Upper —


S302
RECOG switch
1-572-298-11
Pinch roller
T reel table assembly
X-3728-855-1
D302
Tape LED
(GL452S)
8-719-940-81
M901
Drum motor
S reel table assembly
X-3728-851-1
M903
Loading motor assembly
A-7040-208-A

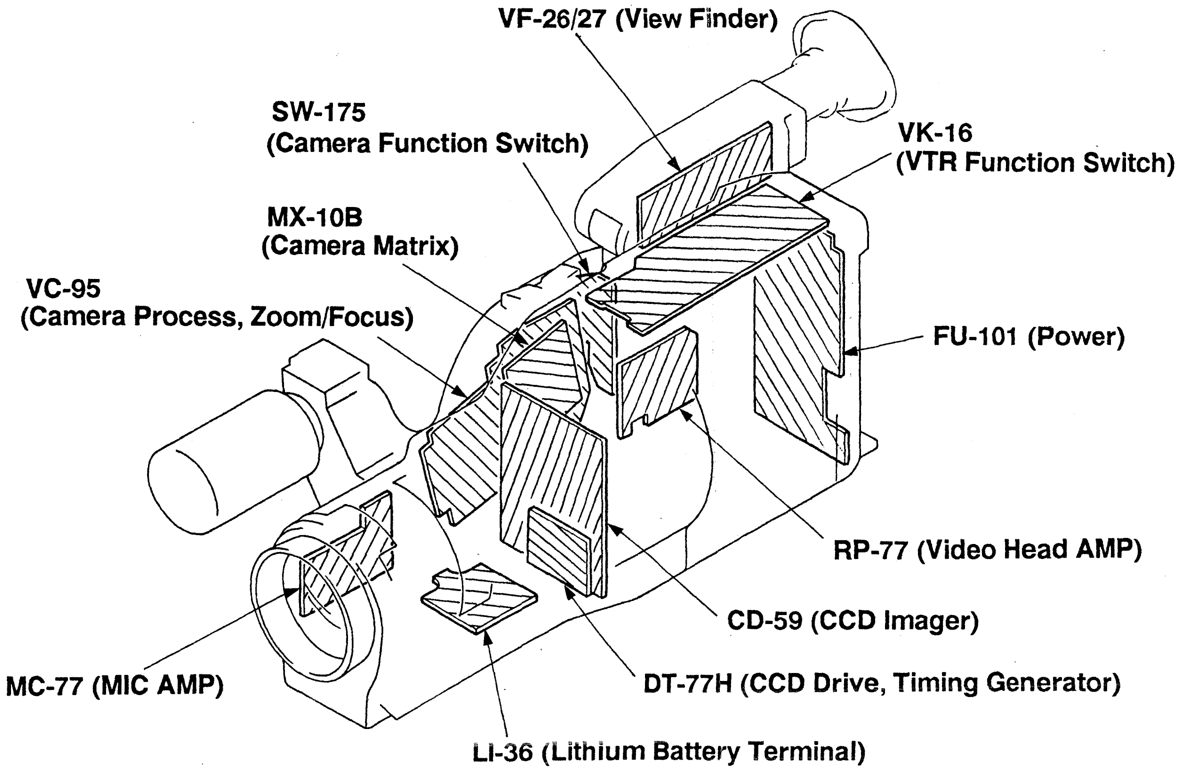
Drum ASSY (DGU-56A-R)	A-7048-356-A
Drum Upper (DGR-56-R)	A-7049-306-A

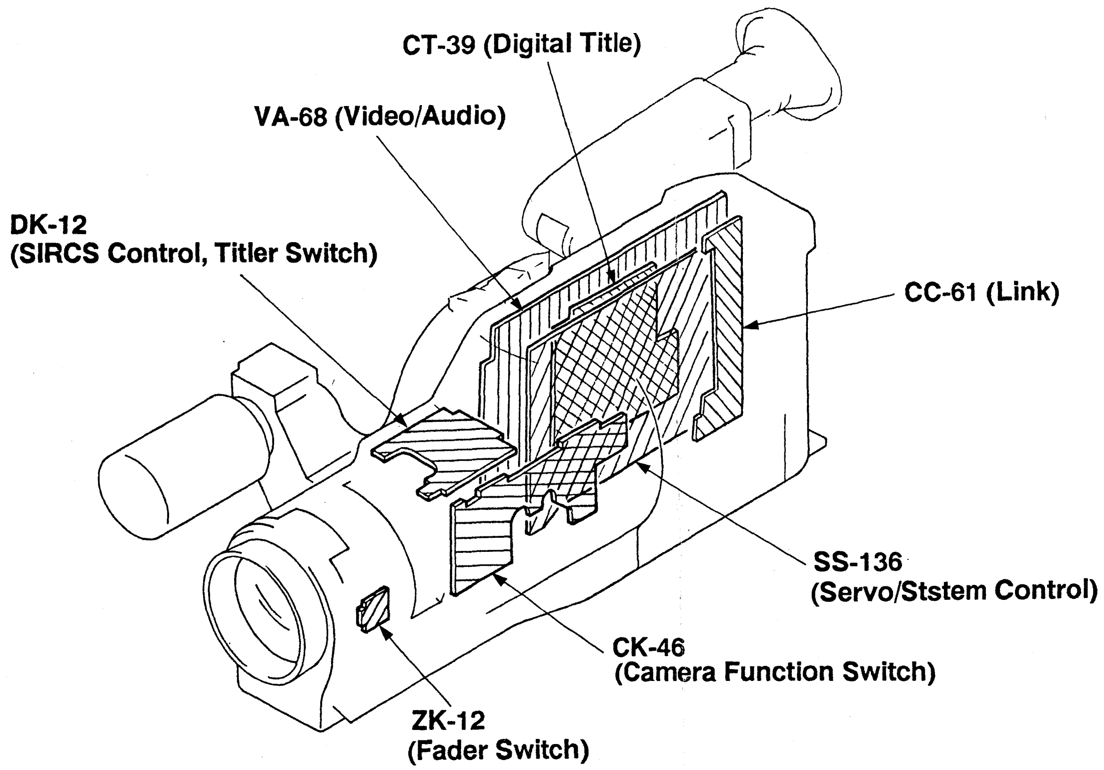
— Lower —


Q302
Tape top sensor
(EE-TP109)
8-729-906-48
Timing belt (S)
3-728-866-01
Timing belt (L)
3-741-197-01
M902
Capstan motor
(U-22A)
8-835-331-01
Q301
Tape end sensor
(EE-TP109)
8-729-906-48

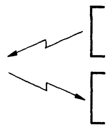
SECTION 3
DIAGRAMS

3-1. CIRCUIT BOARDS LOCATION

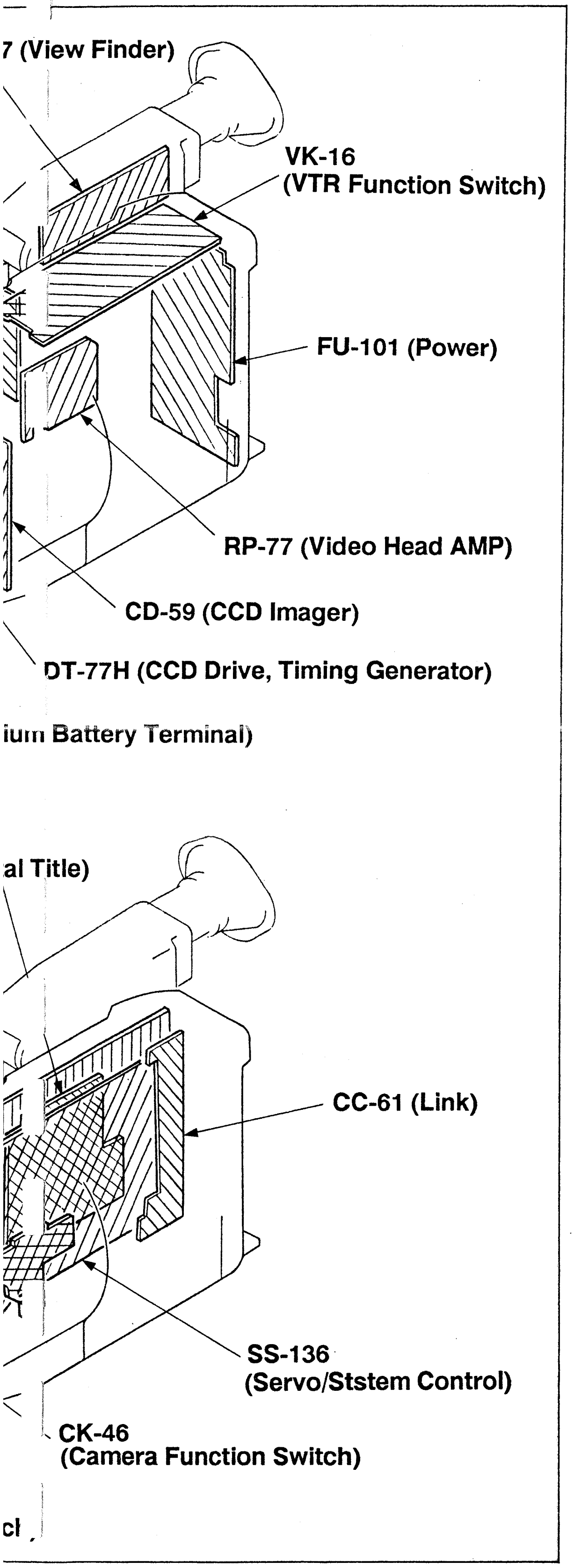

VF-26/27 (View Finder)
SW-175
(Camera Function Switch)
VK-16
(VTR Function Switch)
MX-10B
(Camera Matrix)
VC-95
(Camera Process, Zoom/Focus)
FU-101 (Power)
RP-77 (Video Head AMP)
CD-59 (CCD Imager)
MC-77 (MIC AMP)
DT-77H (CCD Drive, Timing Generator)
LI-36 (Lithium Battery Terminal)


CT-39 (Digital Title)
VA-68 (Video/Audio)
DK-12
(SIRCS Control, Titler Switch)
CC-61 (Link)
SS-136
(Servo/Ststem Control)
CK-46
(Camera Function Switch)
ZK-12
(Fader Switch)

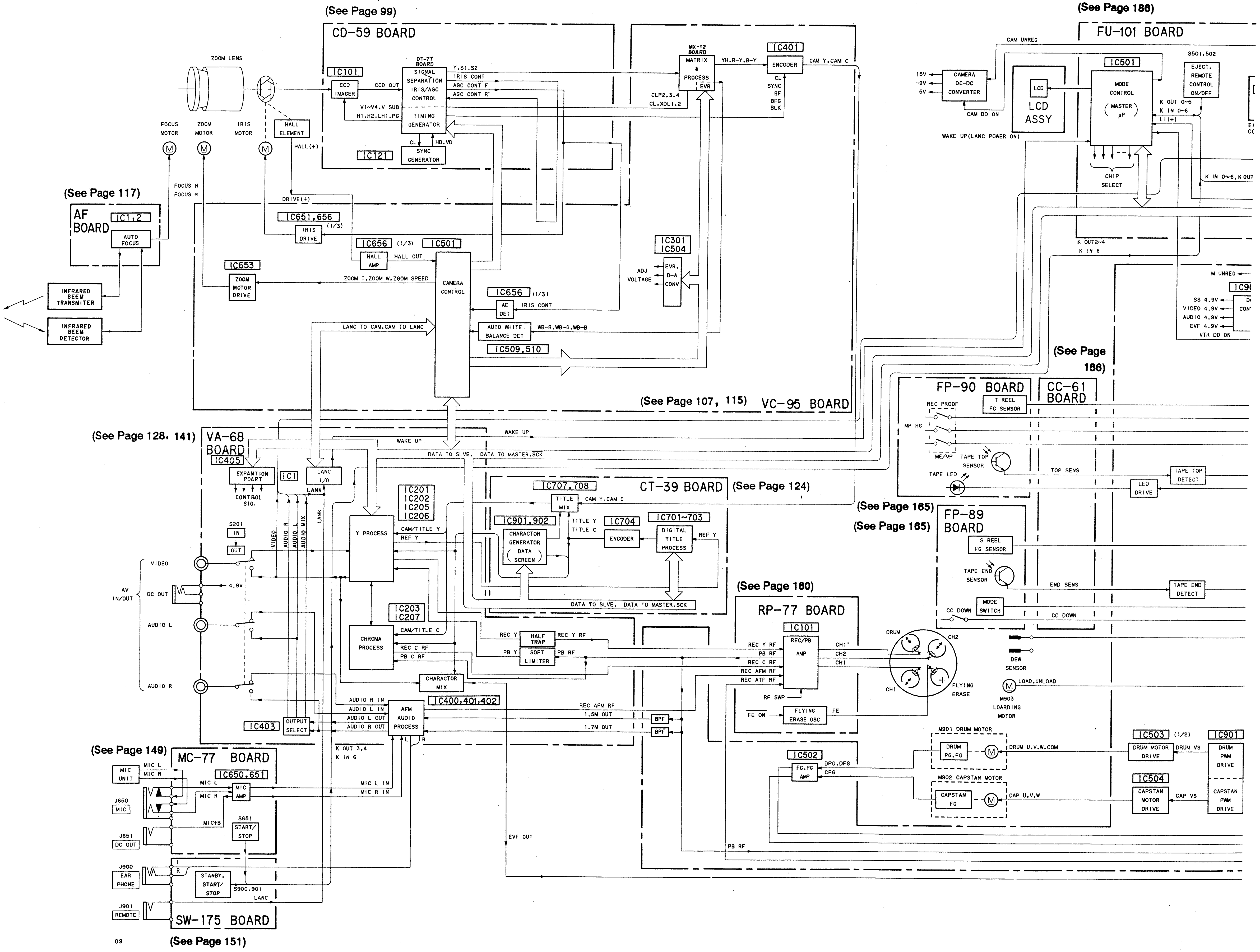
3-2. OVE

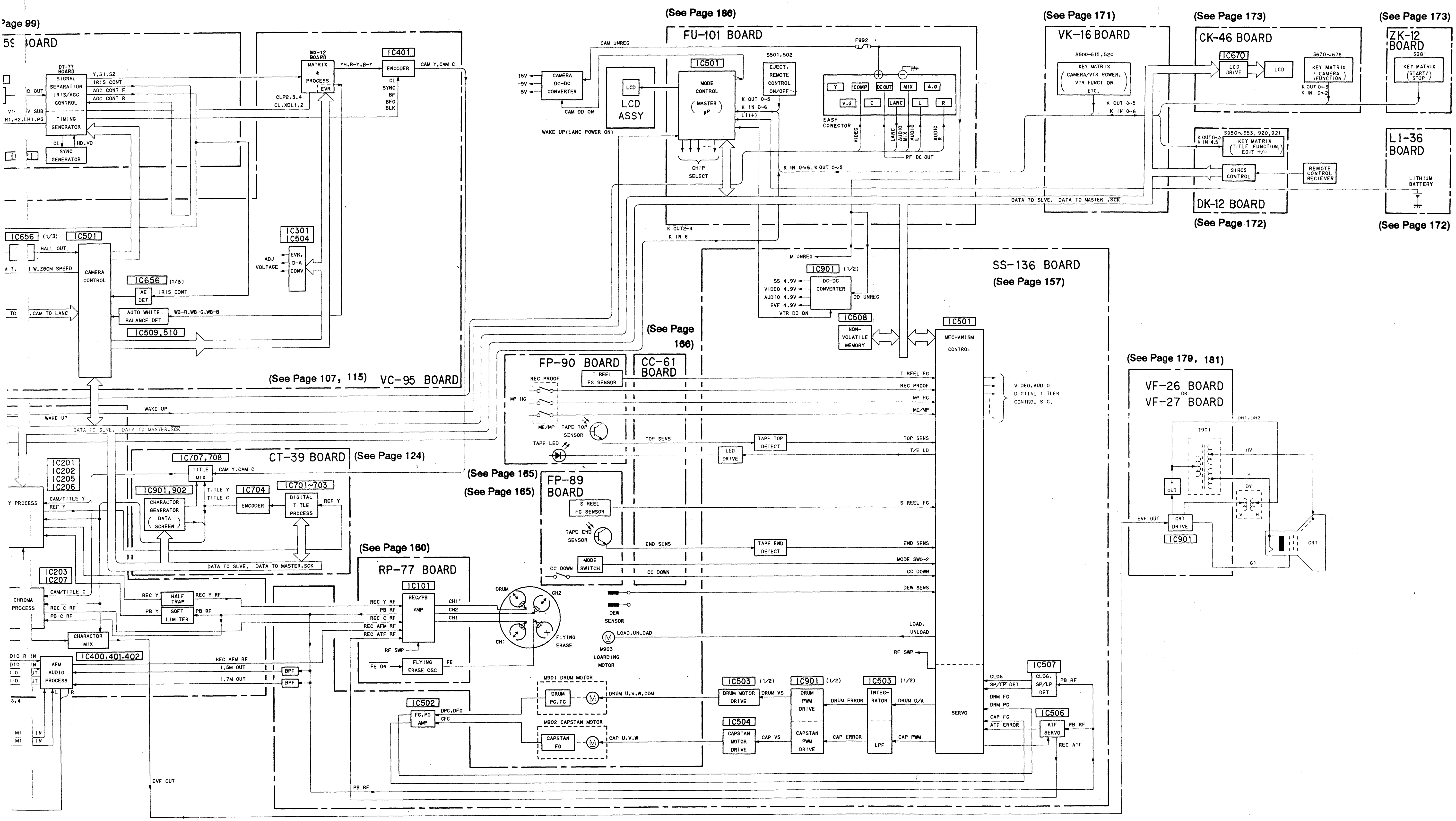


IC N 3
RAMS

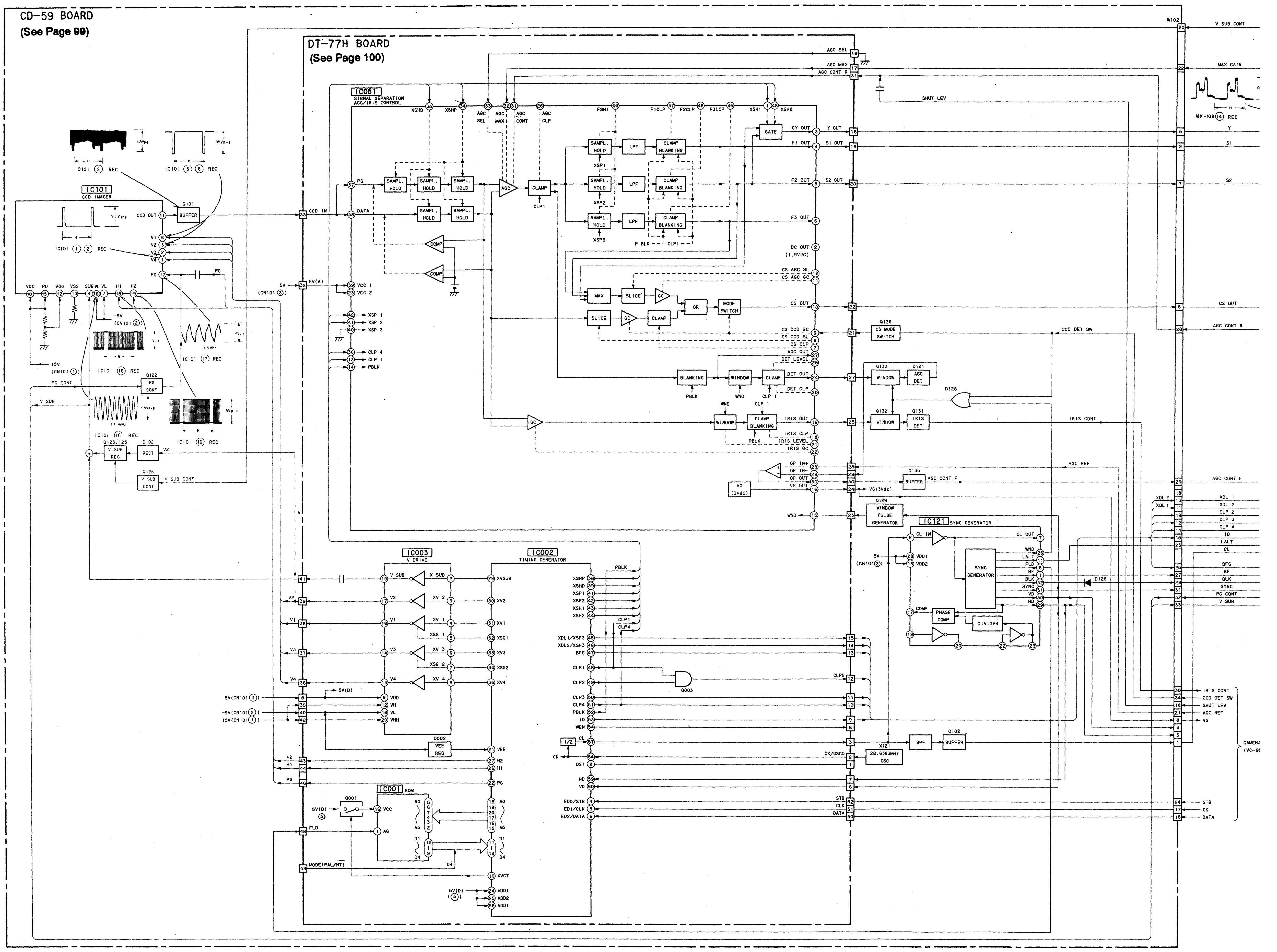

7 (View Finder)
VK-16
(VTR Function Switch)
FU-101 (Power)
RP-77 (Video Head AMP)
CD-59 (CCD Imager)
DT-77H (CCD Drive, Timing Generator)
ium Battery Terminal)
al Title)
CC-61 (Link)
SS-136
(Servo/Ststem Control)
CK-46
(Camera Function Switch)
cl

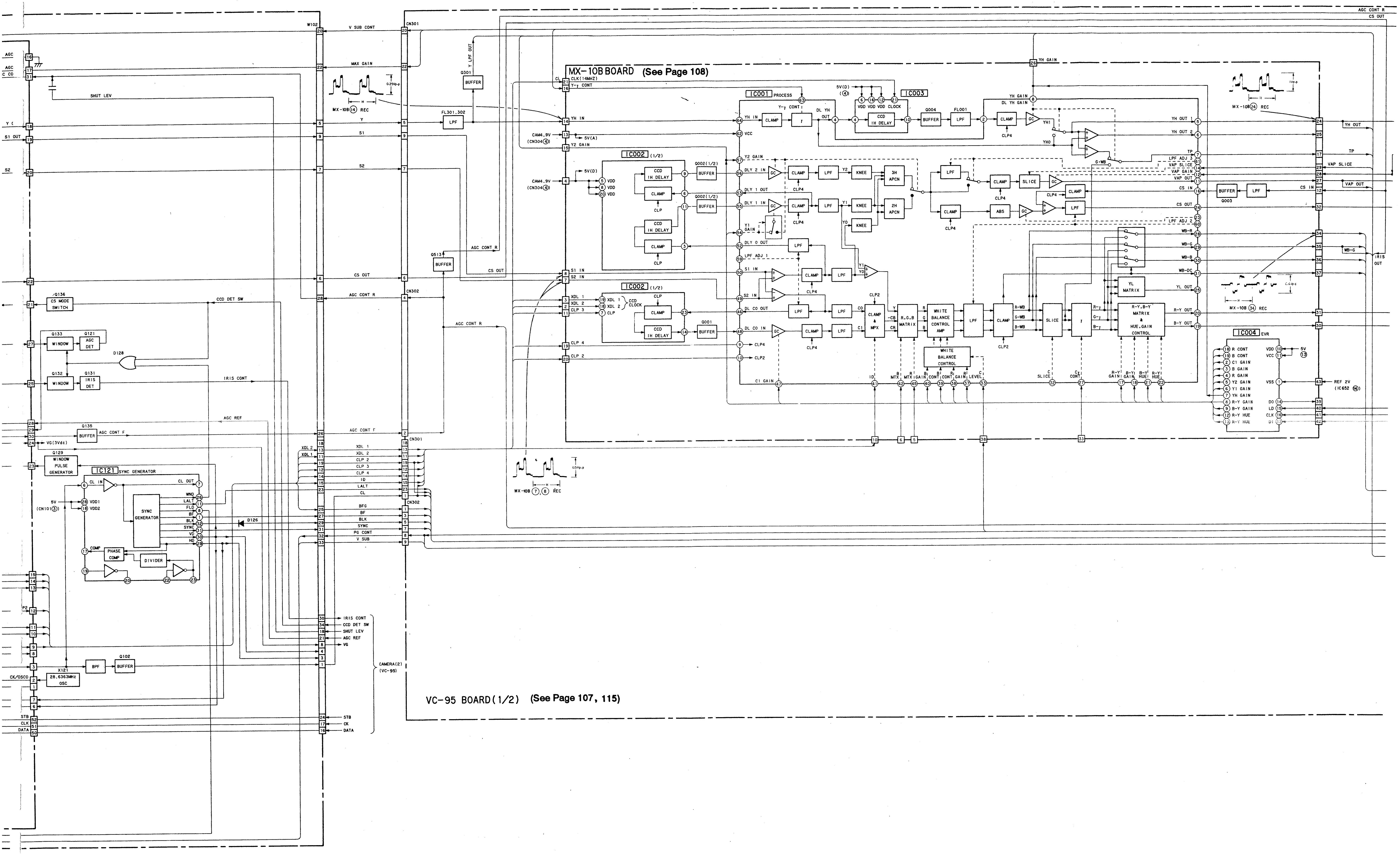
3-2. OVERALL BLOCK DIAGRAM

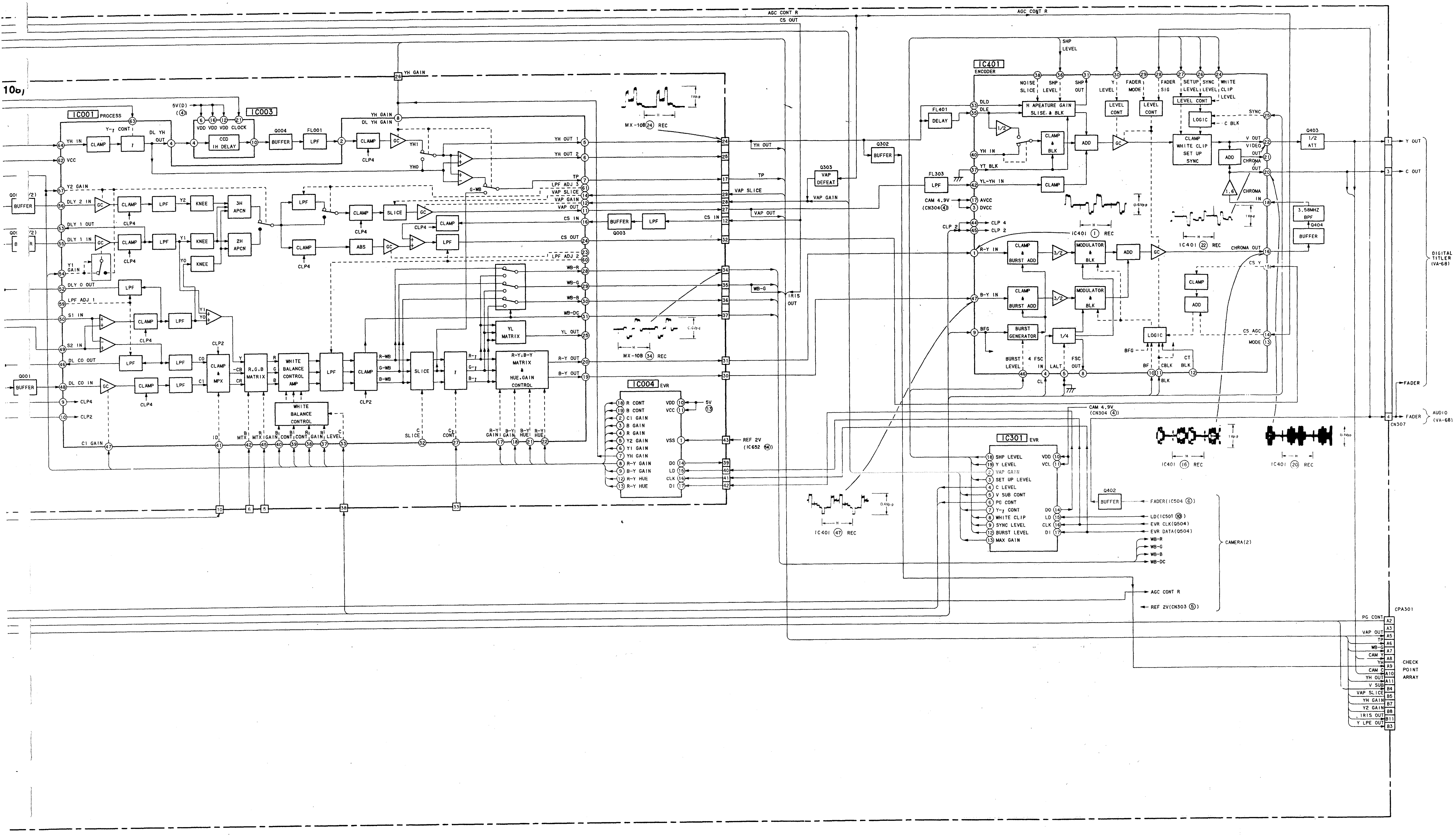

(See Page 99)
CD-59 BOARD
ZOOM LENS
IC101
CCD IMAGER
CCD OUT
DT-77 BOARD
SIGNAL SEPARATION
IRIS/AGC CONTROL
TIMING GENERATOR
IC121
SYNC GENERATOR
Y.S1.S2
IRIS CONT
AGC CONT F
AGC CONT R
V1~V4.V SUB
H1.H2.LH1.PG
CL
HD.VD
FOCUS MOTOR
ZOOM MOTOR
IRIS MOTOR
HALL ELEMENT
HALL(+)
MX-12 BOARD
MATRIX & PROCESS
EVR
YH.R-Y.B-Y
IC401
ENCODER
CAM Y.CAM C
CLP2.3.4
CL.XDL1.2
SYNC
BF
BFG
BLK
(See Page 117)
AF BOARD
IC1,2
AUTO FOCUS
INFRARED BEEM TRANSMITER
INFRARED BEEM DETECTOR
FOCUS N
FOCUS *
DRIVE(+)
IC651,656
IRIS DRIVE
(1/3)
IC656
HALL AMP
HALL OUT
IC501
CAMERA CONTROL
IC653
ZOOM MOTOR DRIVE
ZOOM T.ZOOM W.ZOOM SPEED
IC301
IC504
EVR.
D-A
CONV
ADJ VOLTAGE
IC656
AE DET
IRIS CONT
AUTO WHITE BALANCE DET
WB-R.WB-G.WB-B
IC509,510
LANC TO CAM.CAM TO LANC
(See Page 107, 115)
VC-95 BOARD
(See Page 128, 141)
VA-68 BOARD
IC405
EXPANTION POART
CONTROL SIG.
IC1
LANC I/O
LANK
WAKE UP
DATA TO SLVE. DATA TO MASTER.SCK
S201
IN
OUT
VIDEO
DC OUT
AUDIO L
AUDIO R
AV IN/OUT
4.9V
VIDEO
AUDIO R
AUDIO L
AUDIO MIX
LANK
IC201
IC202
IC205
IC206
Y PROCESS
CAM/TITLE Y
REF Y
IC203
IC207
CHROMA PROCESS
CAM/TITLE C
REC C RF
PB C RF
CHARACTOR MIX
IC400,401,402
AFM AUDIO PROCESS
AUDIO R IN
AUDIO L IN
AUDIO L OUT
AUDIO R OUT
IC403
OUTPUT SELECT
K OUT 3.4
K IN 6
IC707,708
TITLE MIX
CAM Y.CAM C
CT-39 BOARD
(See Page 124)
IC901,902
CHARACTOR GENERATOR
DATA SCREEN
TITLE Y
TITLE C
IC704
ENCODER
IC701~703
DIGITAL TITLE PROCESS
REF Y
DATA TO SLVE. DATA TO MASTER.SCK
REC Y
PB Y
HALF TRAP
SOFT LIMITER
REC Y RF
PB RF
(See Page 149)
MC-77 BOARD
MIC UNIT
MIC L
MIC R
J650
MIC
IC650,651
MIC AMP
MIC+B
S651
START/STOP
J651
DC OUT
J900
EAR PHONE
J901
REMOTE
STANBY. START/STOP
S900.901
LANC
SW-175 BOARD
(See Page 151)
MIC L IN
MIC R IN
EVF OUT
(See Page 160)
RP-77 BOARD
IC101
REC/PB AMP
REC Y RF
PB RF
REC C RF
REC AFM RF
REC ATF RF
CH1'
CH2
CH1
RF SWP
FE ON
FLYING ERASE OSC
FE
REC AFM RF
1.5M OUT
1.7M OUT
BPF
BPF
DRUM
FLYING ERASE
IC502
FG.PG AMP
DPG.DFG
CFG
PB RF
(See Page 186)
FU-101 BOARD
CAM UNREG
15V
-9V
5V
CAMERA DC-DC CONVERTER
CAM DD ON
WAKE UP(LANC POWER ON)
LCD
LCD ASSY
IC501
MODE CONTROL
MASTER µP
CHIP SELECT
S501,502
EJECT. REMOTE CONTROL ON/OFF
K OUT 0~5
K IN 0~6
LI(+)
K IN 0~6, K OUT
K OUT2~4
K IN 6
M UNREG
SS 4.9V
VIDEO 4.9V
AUDIO 4.9V
EVF 4.9V
VTR DD ON
(See Page 186)
FP-90 BOARD
CC-61 BOARD
REC PROOF
T REEL FG SENSOR
MP HG
ME/MP
TAPE TOP SENSOR
TAPE LED
TOP SENS
LED DRIVE
TAPE TOP DETECT
(See Page 185)
(See Page 165)
FP-89 BOARD
S REEL FG SENSOR
TAPE END SENSOR
END SENS
TAPE END DETECT
CC DOWN
MODE SWITCH
CC DOWN
DEW SENSOR
LOAD.UNLOAD
M903 LOADING MOTOR
M901 DRUM MOTOR
DRUM PG.FG
DRUM U.V.W.COM
M902 CAPSTAN MOTOR
CAPSTAN FG
CAP U.V.W
IC503 (1/2)
DRUM MOTOR DRIVE
DRUM VS
IC504
CAPSTAN MOTOR DRIVE
CAP VS
IC901
DRUM PWM DRIVE
CAPSTAN PWM DRIVE
09


(See Page 99)
59 BOARD
DT-77 BOARD
SIGNAL SEPARATION
IRIS/AGC CONTROL
TIMING GENERATOR
SYNC GENERATOR
Y.S1.S2
IRIS CONT
AGC CONT F
AGC CONT R
MX-12 BOARD
MATRIX & PROCESS
EVR
YH.R-Y.B-Y
IC401
ENCODER
CAM Y.CAM C
CL
SYNC
BF
BFG
BLK
CLP2.3.4
CL.XDL1.2
IC301
IC504
EVR. D-A CONV
ADJ VOLTAGE
IC656 (1/3)
IC501
HALL OUT
W.ZOOM SPEED
CAMERA CONTROL
AE DET
IRIS CONT
AUTO WHITE BALANCE DET
WB-R.WB-G.WB-B
IC509,510
CAM TO LANC
(See Page 107, 115)
VC-95 BOARD
WAKE UP
DATA TO SLVE. DATA TO MASTER.SCK
IC201
IC202
IC205
IC206
Y PROCESS
CAM/TITLE Y
REF Y
CT-39 BOARD
(See Page 124)
IC707,708
TITLE MIX
CAM Y.CAM C
IC901,902
CHARACTOR GENERATOR (DATA SCREEN)
TITLE Y
TITLE C
IC704
ENCODER
IC701~703
DIGITAL TITLE PROCESS
REF Y
IC203
IC207
CHROMA PROCESS
CAM/TITLE C
REC C RF
PB C RF
CHARACTOR MIX
IC400,401,402
AFM AUDIO PROCESS
REC AFM RF
1.5M OUT
1.7M OUT
BPF
EVF OUT
(See Page 160)
RP-77 BOARD
IC101
REC/PB AMP
REC Y
HALF TRAP
REC Y RF
PB Y
SOFT LIMITER
PB RF
REC C RF
REC AFM RF
REC ATF RF
CH1'
CH2
CH1
RF SWP
FLYING ERASE OSC
FE ON
FE
DRUM
FLYING ERASE
IC502
FG.PG AMP
DPG.DFG
CFG
M901 DRUM MOTOR
DRUM PG.FG
DRUM U.V.W.COM
M902 CAPSTAN MOTOR
CAPSTAN FG
CAP U.V.W
(See Page 186)
FU-101 BOARD
CAM UNREG
15V
-9V
5V
CAMERA DC-DC CONVERTER
CAM DD ON
WAKE UP(LANC POWER ON)
LCD
LCD ASSY
IC501
MODE CONTROL (MASTER μP)
CHIP SELECT
S501,502
EJECT. REMOTE CONTROL ON/OFF
K OUT 0~5
K IN 0~6
LI(+)
F992
Y
COMP
DC OUT
MIX
A.G
V.G
C
LANC
L
R
EASY CONECTOR
VIDEO
LANC
AUDIO MIX
AUDIO L
AUDIO R
RF DC OUT
K IN 0~6, K OUT 0~5
K OUT2~4
K IN 6
(See Page 171)
VK-16 BOARD
S500~515,520
KEY MATRIX (CAMERA/VTR POWER, VTR FUNCTION ETC.)
K OUT 0~5
K IN 0~6
(See Page 173)
CK-46 BOARD
IC670
LCD DRIVE
LCD
S670~676
KEY MATRIX (CAMERA FUNCTION)
K OUT 0~3
K IN 0~2
ZK-12 BOARD
S681
KEY MATRIX (START/STOP)
K OUT0~5
K IN 4.5
S950~953, 920,921
KEY MATRIX (TITLE FUNCTION, EDIT +/-)
SIRCS CONTROL
REMOTE CONTROL RECIEVER
DK-12 BOARD
(See Page 172)
LI-36 BOARD
LITHIUM BATTERY
DATA TO SLVE. DATA TO MASTER .SCK
SS-136 BOARD
(See Page 157)
M UNREG
IC901 (1/2)
DC-DC CONVERTER
SS 4.9V
VIDEO 4.9V
AUDIO 4.9V
EVF 4.9V
VTR DD ON
DD UNREG
IC508
NON-VOLATILE MEMORY
IC501
MECHANISM CONTROL
SERVO
(See Page 186)
FP-90 BOARD
CC-61 BOARD
T REEL FG SENSOR
REC PROOF
MP HG
ME/MP
TAPE TOP SENSOR
TAPE LED
TOP SENS
LED DRIVE
TAPE TOP DETECT
T/E LD
T REEL FG
REC PROOF
MP HG
ME/MP
VIDEO.AUDIO DIGITAL TITLER CONTROL SIG.
(See Page 165)
FP-89 BOARD
S REEL FG SENSOR
TAPE END SENSOR
END SENS
TAPE END DETECT
MODE SWITCH
MODE SW0~2
CC DOWN
DEW SENS
DEW SENSOR
M903 LOADING MOTOR
LOAD.UNLOAD
RF SWP
IC503 (1/2)
DRUM MOTOR DRIVE
DRUM VS
IC901 (1/2)
DRUM PWM DRIVE
DRUM ERROR
IC503 (1/2)
INTEG-RATOR
DRUM D/A
IC504
CAPSTAN MOTOR DRIVE
CAP VS
CAPSTAN PWM DRIVE
CAP ERROR
LPF
CAP PWM
IC507
CLOG. SP/LP DET
CLOG
SP/LP DET
PB RF
DRM FG
DRM PG
CAP FG
ATF ERROR
IC506
ATF SERVO
REC ATF
(See Page 179, 181)
VF-26 BOARD OR VF-27 BOARD
DH1.DH2
T901
HV
H
H OUT
DY
V
EVF OUT
CRT DRIVE
IC901
G1
CRT

3-3. CAMERA (1) BLOCK DIAGRAM


CD-59 BOARD
(See Page 99)
DT-77H BOARD
(See Page 100)
IC101 CCD IMAGER
Q101 BUFFER
CCD OUT
Q122 PG CONT
Q123,125 V SUB REG
D102 RECT
Q126 V SUB CONT
IC051 SIGNAL SEPARATION AGC/IRIS CONTROL
SAMPL. HOLD
AGC
CLAMP
LPF
CLAMP BLANKING
GATE
COMP
MAX
SLICE
GC
OR
MODE SWITCH
BLANKING
WINDOW
CLAMP BLANKING
GY OUT
Y OUT
F1 OUT
S1 OUT
F2 OUT
S2 OUT
F3 OUT
DC OUT (1.9Vdc)
CS OUT
DET OUT
IRIS OUT
OP IN+
OP IN−
OP OUT
VG OUT
VG (3Vdc)
WND
Q136 CS MODE SWITCH
Q133 WINDOW
Q121 AGC DET
Q132 WINDOW
Q131 IRIS DET
D128
Q135 BUFFER
AGC CONT F
Q129 WINDOW PULSE GENERATOR
IC121 SYNC GENERATOR
SYNC GENERATOR
PHASE COMP
DIVIDER
D126
X121 28.6363MHz OSC
BPF
Q102 BUFFER
IC003 V DRIVE
IC002 TIMING GENERATOR
Q002 VEE REG
IC001 ROM
Q001
Q003
MODE (PAL/NT)
W102
V SUB CONT
MAX GAIN
SHUT LEV
AGC CONT R
AGC REF
IRIS CONT
CCD DET SW
MX-108 (14) REC
Y
S1
S2
CS OUT
XDL 1
XDL 2
CLP 2
CLP 3
CLP 4
ID
LALT
CL
BFG
BF
BLK
SYNC
PG CONT
V SUB
STB
CK
DATA
CAMERA (VC-9


MX-10B BOARD (See Page 108)
VC-95 BOARD(1/2) (See Page 107, 115)
IC001 PROCESS
IC002 (1/2)
IC003
IC004 EVR
IC121 SYNC GENERATOR
CCD 1H DELAY
CLAMP
BUFFER
LPF
KNEE
3H APCN
2H APCN
SLICE
ABS
GC
R.G.B MATRIX
WHITE BALANCE CONTROL AMP
R-Y,B-Y MATRIX & HUE,GAIN CONTROL
YL MATRIX
CLAMP & MPX
WINDOW
AGC DET
IRIS DET
CS MODE SWITCH
WINDOW PULSE GENERATOR
SYNC GENERATOR
PHASE COMP
DIVIDER
BPF
28.6363MHz OSC
W102
CN301
CN302
V SUB CONT
MAX GAIN
SHUT LEV
Y LPF OUT
AGC CONT R
CS OUT
AGC CONT F
CCD DET SW
IRIS CONT
AGC REF
YH GAIN
YH IN
YH OUT 1
YH OUT 2
VAP SLICE
VAP GAIN
VAP OUT
CS IN
WB-R
WB-G
WB-B
WB-DC
YL OUT
R-Y OUT
B-Y OUT
REF 2V (IC652 ⑭)
XDL 1
XDL 2
CLP 2
CLP 3
CLP 4
BFG
BF
BLK
SYNC
PG CONT
V SUB
STB
CK
DATA
CAMERA(2) (VC-95)
MX-10B ⑭ REC
MX-10B ㉔ REC
MX-10B ㉞ REC
MX-10B ⑦,⑧ REC
D126
D128
Q136
Q133
Q121
Q132
Q131
Q135
Q129
Q102
X121
Q301
Q513
Q001
Q002(1/2)
Q003
Q004
FL001
FL301,302
5V (CN101③)
CAM4.9V (CN304④)



IC001 PROCESS
IC003
IC004 EVR
IC401 ENCODER
IC301 EVR
YH GAIN
AGC CONT R
CS OUT
YH IN
VCC
CLAMP
DL YH OUT
CCD 1H DELAY
BUFFER
Q004
FL001
LPF
GC
YH OUT 1
YH OUT 2
TP
LPF ADJ 3
VAP SLICE
VAP GAIN
VAP OUT
CS IN
Y2 GAIN
DLY 2 IN
DLY 1 OUT
DLY 1 IN
DLY 0 OUT
LPF ADJ 1
S1 IN
S2 IN
DL CO OUT
DL CO IN
CLP4
CLP2
KNEE
3H APCN
2H APCN
SLICE
ABS
WB-R
WB-G
WB-B
WB-DC
YL MATRIX
YL OUT
R-Y OUT
B-Y OUT
R.G.B MATRIX
WHITE BALANCE CONTROL AMP
WHITE BALANCE CONTROL
R-Y, B-Y MATRIX & HUE, GAIN CONTROL
C1 GAIN
Q001
Q003
Q303 VAP DEFEAT
Q302
FL401 DELAY
FL303
H APEATURE GAIN SLISE. & BLK
NOISE SLICE
SHP LEVEL
SHP OUT
LEVEL CONT
FADER MODE
FADER SIG
SETUP LEVEL
SYNC LEVEL
WHITE CLIP LEVEL
CLAMP WHITE CLIP SET UP SYNC
V OUT
VIDEO OUT
CHROMA OUT
CHROMA IN
Q403 1/2 ATT
Y OUT
C OUT
3.58MHZ BPF
Q404
MODULATOR & BLK
CLAMP & BURST ADD
BURST GENERATOR
R-Y IN
B-Y IN
BFG
CS AGC MODE
LOGIC
CAM 4.9V (CN304 ④)
AVCC
DVCC
CLP 4
CLP 2
DIGITAL TITLER (VA-68)
FADER
AUDIO (VA-68)
CN307
Q402
FADER(IC506 ⑥)
LD(IC501 ⑩)
EVR CLK(Q504)
EVR DATA(Q504)
CAMERA(2)
AGC CONT R
REF 2V(CN303 ⑤)
REF 2V (IC652 ⑭)
MX-108 ㉔ REC
MX-108 ㉞ REC
IC401 ① REC
IC401 ㉒ REC
IC401 ⑯ REC
IC401 ⑳ REC
IC401 ㊼ REC
CPA301
PG CONT
VAP OUT
CAM Y
CAM C
YH OUT
V SUB
VAP SLICE
YH GAIN
Y2 GAIN
IRIS OUT
Y LPF OUT
CHECK POINT ARRAY

3-4. CAMERA SYSTEM CONTROL VC-95 BOARD IC501 (MC68HC11E9)

[Description]

MC68HC11E9 is a 8-bit one-chip micro computer with a built-in nonvalotile memory (EEPROM). The camera system is controlled by this micro computer. In addition, protocol master control of the LANC communication can be performed.

1. Function

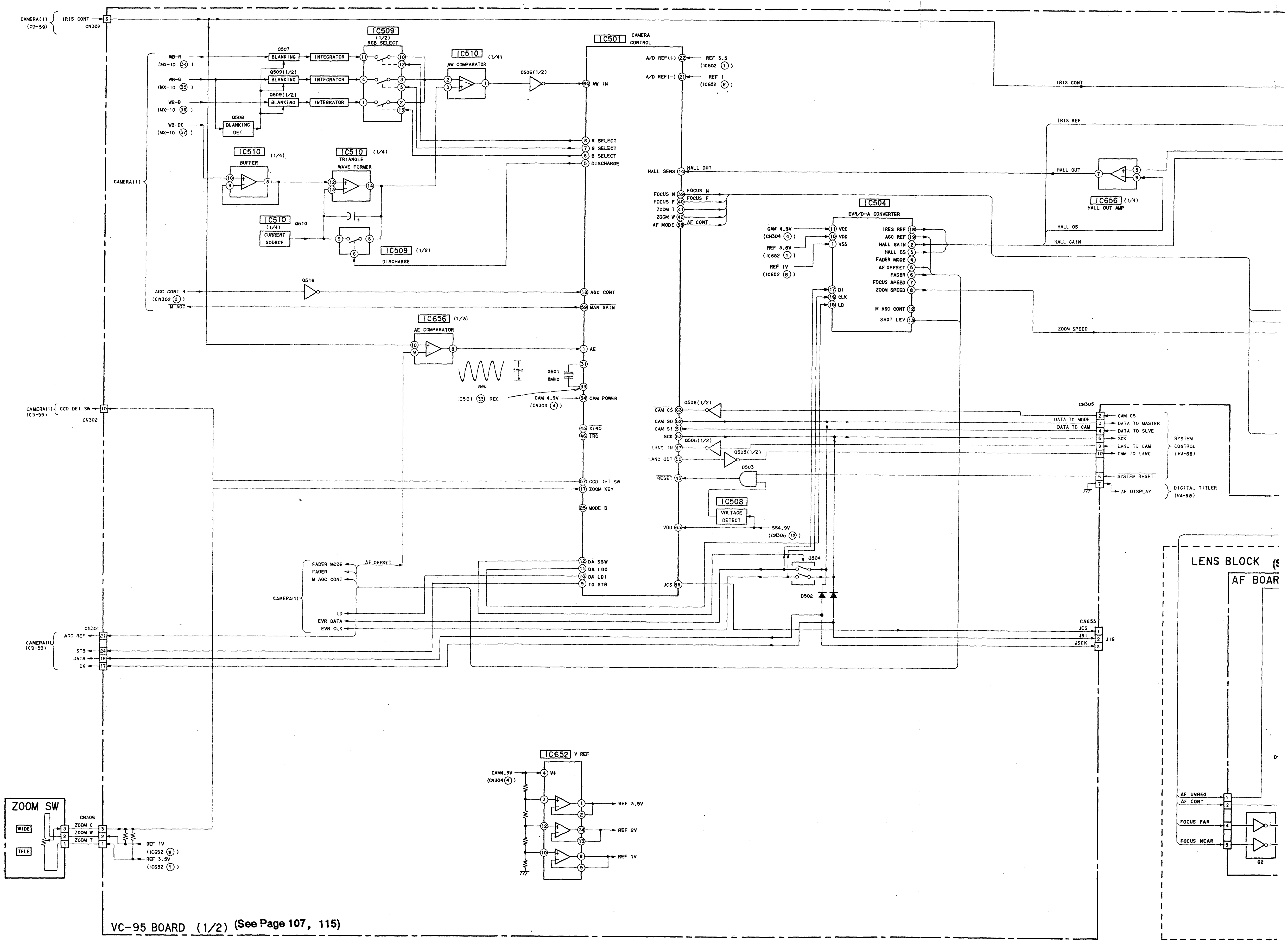
1) EVR Control
2) AWB Control
3) AE Control
4) LANC communication protocol control

2. Pin Description

Pin No.	Signal Name	I/O	Function
1	AE	I	——
2	NC	–	——
3	NC	–	——
4	NC	–	——
5	DIS CHG	O	AWB. AE Integration-type A/D reset pulse
6	B SELECT	O	AWB Instrumentation line select pulse (blue)
7	G SELECT	O	AWB Instrumentation line select pulse (green)
8	R SELECT	O	AWB Instrumentation line select pulse (red)
9	TG STB	O	Strobe signal for timing generator (IC002 on DT-77)
10	DA LD1	O	Load pulse for D/A converter (IC301 on MX-10)
11	DA LD0	O	Load pulse for D/A converter (IC504)
12	DA SSW	O	Switching pulse output for communication bus line.
13	F SENS1	I	——
14	HALL SENS	I	——
15	ZOOM SENS	I	——
16	AN5	I	
17	ZOOM KEY	I	Zoom switch voltage input (Analog input)
18	AGC CONT	I	AGC voltage input (Analog input)
19	F SENS2	I	——
20	AE IN	I	AE Integration-type A/D converter comparator input
21	A/D REF (–)	–	Built-in A/D converter the minimum standard voltage (Analog input)
22	A/D REF (+)	–	Built-in A/D converter the minimum standard voltage (Analog input)
23	Vss	–	GND
24	Vss	–	GND
25	MODE B	I	Pull up to SS 4.9V
26	NC	–	——
27	MODE A	I	Pull down to GND
28	STR A	–	——
29	E	–	——
30	STR B	–	——
31	EXTAL	$\overline{\text{O}}$	Built-in inverter output for oscillating element
32	NC	–	——

Pin No.	Signal Name	I/O	Function
33	XTAL	I	Built-in inverter input for oscillating element
34	CAM POWER	I	Camera power source rise supervision
35	NC	–	——
36	JCS	O	——
37	PC2	–	——
38	AF MODE	O	AUTO FOCUS ON/OFF select
39	FOCUS N	O	Focus motor N-direction rotaing designation
40	FOCUS F	O	Focus motor ∞ -direction rotaing designation
41	ZOOM T	O	Zoom motor T-direction rotaing designation
42	ZOOM W	O	Zoom motor W-direction rotaing designation
43	$\overline{\text{RESET}}$	I	Reset
44	NC	–	——
45	$\overline{\text{XIRQ}}$	I	Pull up tp SS 4.9V
46	$\overline{\text{IRQ}}$	I	Pull up tp SS 4.9V
47	LANC IN	I	LANC input
48	NC	–	——
49	Vss	–	GND
50	LANC OUT	O	LANC output
51	CAM SI	I	Serial data input
52	CAM SO	O	Serial data output
53	SCK	O	Serial clock
54	SENS DRIVE	O	——
55	VDD	–	SS 4.9V
56	FADER B/$\overline{\text{W}}$	O	Fader mode black/white select
57	PA6	O	CCD DET switch select
58	OC3	–	——
59	$\overline{\text{MAN GAIN}}$	O	AGC system automatic/manual select
60	NC	–	——
61	NC	–	——
62	$\overline{\text{MAN IRIS}}$	O	IRIS system automatic/manual select
63	$\overline{\text{CAM CS}}$	I	Camera chip select input
64	$\overline{\text{AW IN}}$	I	AWB Integration-type A/D converter comparator input

3-5. CAMERA (2) BLOCK DIAGRAM


CAMERA(1) (CD-59)
IRIS CONT
CN302
WB-R (MX-10 ㉞)
WB-G (MX-10 ㉟)
WB-B (MX-10 ㊱)
WB-DC (MX-10 ㊲)
CAMERA(1)
Q507
BLANKING
Q509(1/2)
BLANKING
Q509(1/2)
BLANKING
INTEGRATOR
INTEGRATOR
INTEGRATOR
Q508
BLANKING DET
IC509 (1/2) RGB SELECT
IC510 (1/4) AW COMPARATOR
Q506(1/2)
IC501 CAMERA CONTROL
A/D REF(+)
A/D REF(−)
REF 3.5 (IC652 ①)
REF 1 (IC652 ⑧)
AW IN
R SELECT
G SELECT
B SELECT
DISCHARGE
IC510 (1/4) BUFFER
IC510 (1/4) TRIANGLE WAVE FORMER
IC510 (1/4) CURRENT SOURCE
Q510
IC509 (1/2) DISCHARGE
HALL SENS
HALL OUT
FOCUS N
FOCUS F
ZOOM T
ZOOM W
AF MODE
AF CONT
IC504 EVR/D-A CONVERTER
CAM 4.9V (CN304 ④)
REF 3.5V (IC652 ①)
REF 1V (IC652 ⑧)
VCC
VDD
VSS
IRES REF
AGC REF
HALL GAIN
HALL OS
FADER MODE
AE OFFSET
FADER
FOCUS SPEED
ZOOM SPEED
M AGC CONT
SHOT LEV
DI
CLK
LD
IRIS CONT
IRIS REF
HALL OUT
IC656 (1/4) HALL OUT AMP
HALL OS
HALL GAIN
ZOOM SPEED
AGC CONT R (CN302 ②)
M AGC
Q516
AGC CONT
MAN GAIN
IC656 (1/3) AE COMPARATOR
AE
X501 8MHz
IC501 ㉝ REC
CAM 4.9V (CN304 ④)
CAM POWER
CAMERA(1) (CD-59) CCD DET SW
CN302
XIRQ
IRQ
CAM CS
CAM SO
CAM SI
SCK
LANC IN
LANC OUT
RESET
Q506(1/2)
Q505(1/2)
Q505(1/2)
D503
IC508 VOLTAGE DETECT
VDD
SS4.9V (CN305 ⑫)
CCD DET SW
ZOOM KEY
MODE B
CN305
DATA TO MODE
DATA TO CAM
CAM CS
DATA TO MASTER
DATA TO SLVE
SCK
LANC TO CAM
CAM TO LANC
SYSTEM CONTROL (VA-68)
SYSTEM RESET
AF DISPLAY
DIGITAL TITLER (VA-68)
FADER MODE
FADER
M AGC CONT
AF OFFSET
CAMERA(1)
LD
EVR DATA
EVR CLK
DA SSW
DA LDO
DA LDI
TG STB
JCS
Q504
D502
CN301
CAMERA(1) (CD-59)
AGC REF
STB
DATA
CK
CN655
JCS
JSI
JSCK
JIG
LENS BLOCK
AF BOAR
AF UNREG
AF CONT
FOCUS FAR
FOCUS NEAR
Q2
IC652 V REF
CAM4.9V (CN304 ④)
V+
REF 3.5V
REF 2V
REF 1V
ZOOM SW
WIDE
TELE
CN306
ZOOM C
ZOOM W
ZOOM T
REF 1V (IC652 ⑧)
REF 3.5V (IC652 ①)
VC-95 BOARD (1/2) (See Page 107, 115)

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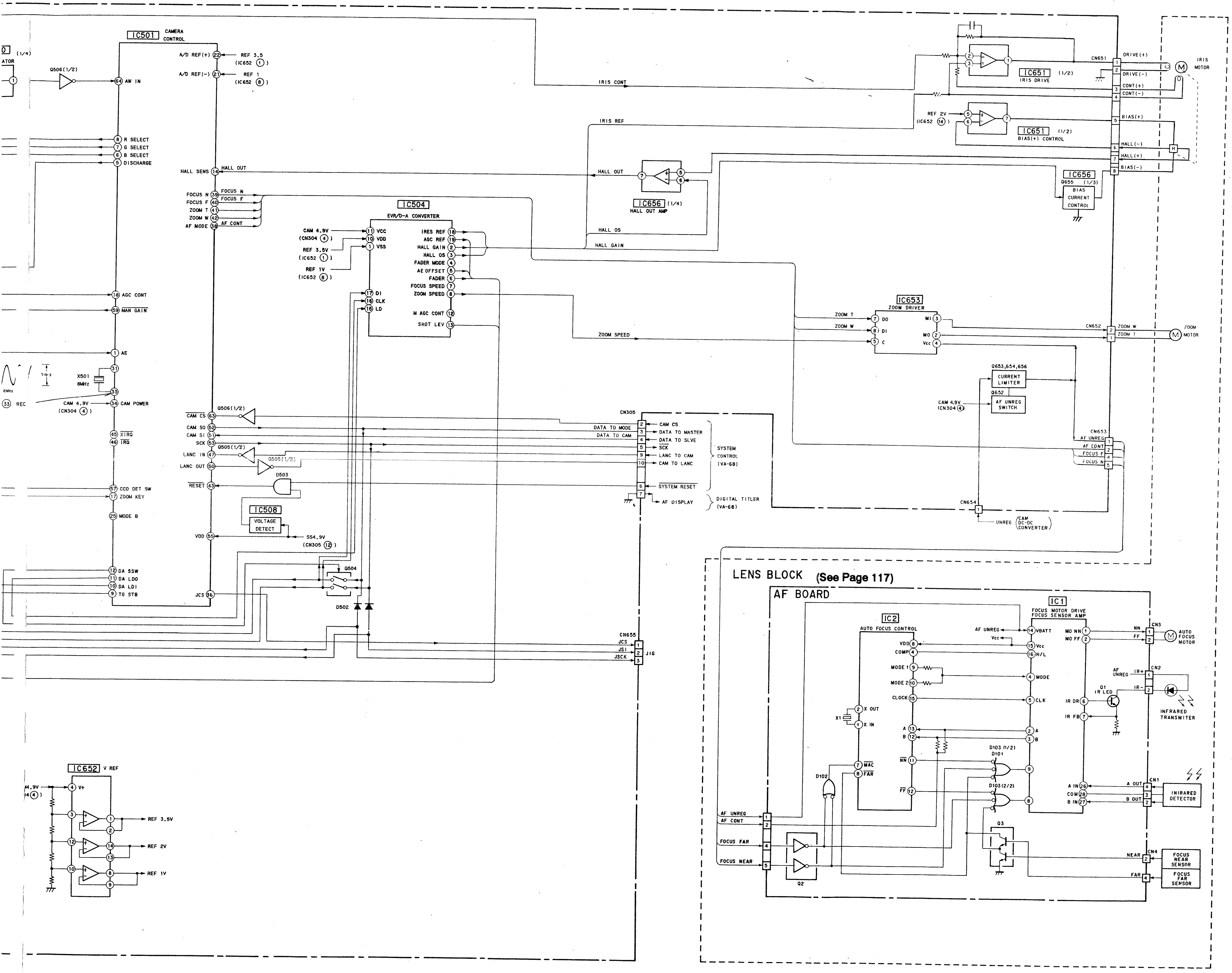
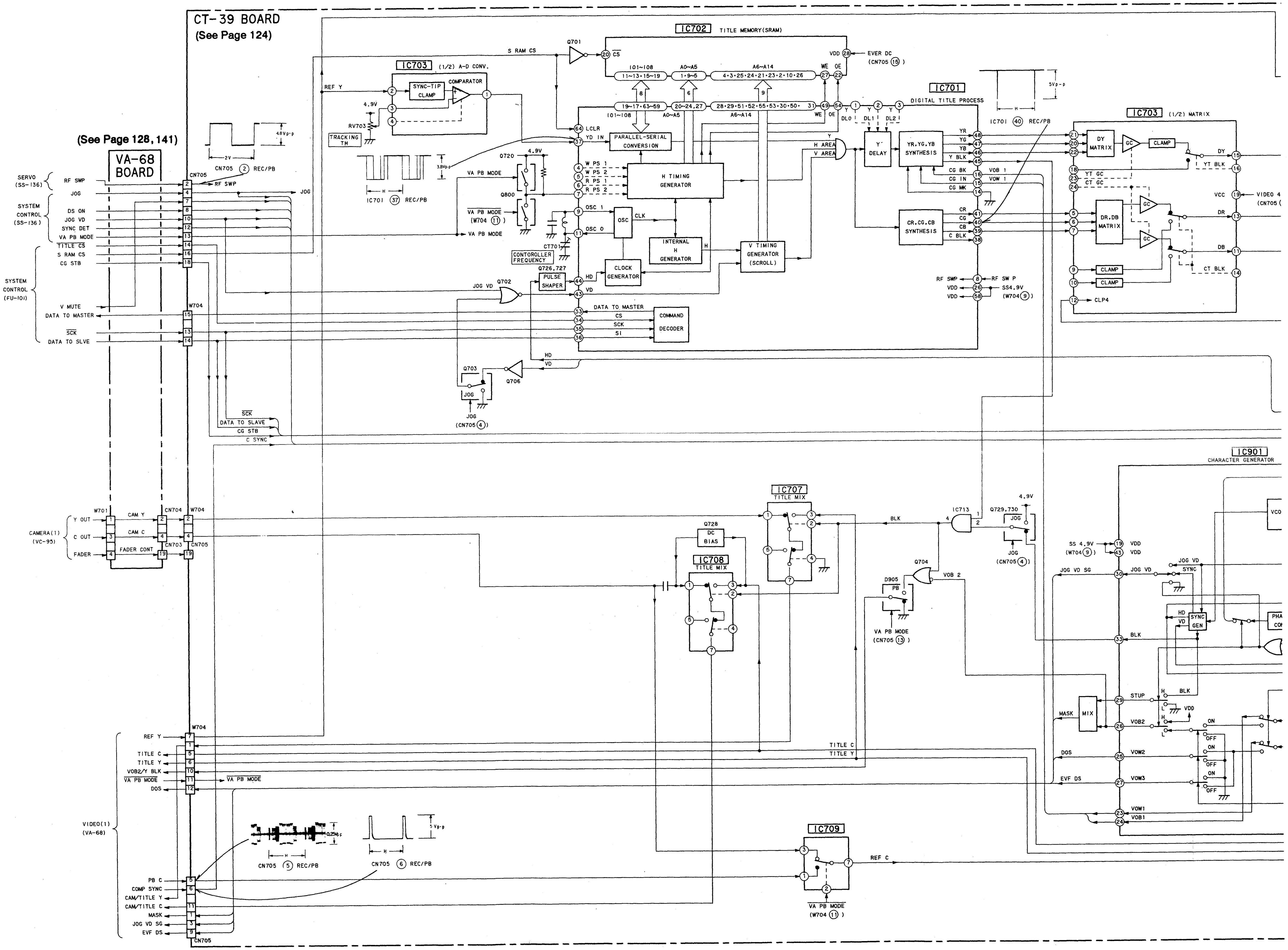
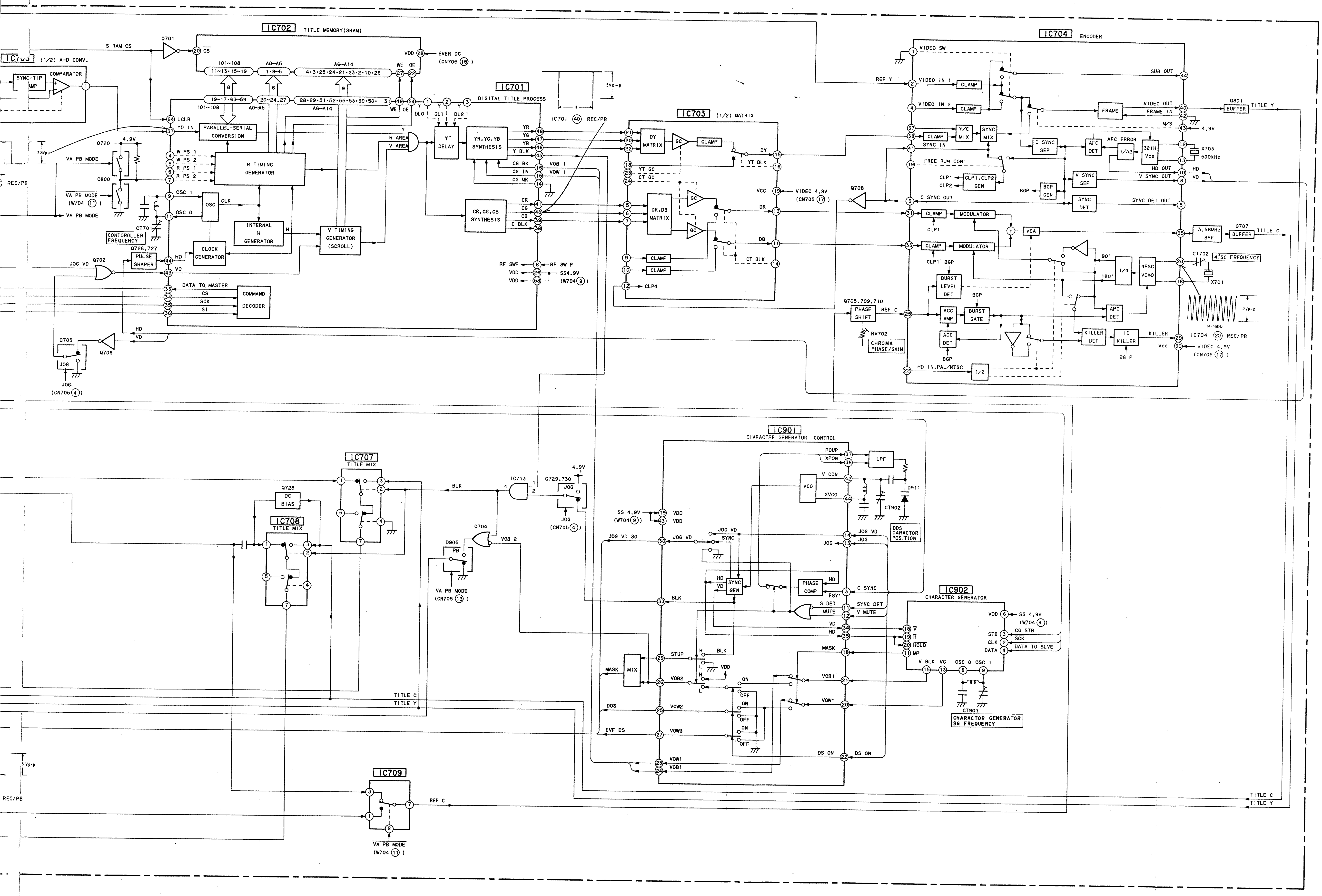

IC501 CAMERA CONTROL
A/D REF(+)
A/D REF(−)
REF 3.5 (IC652 ①)
REF 1 (IC652 ⑧)
Q506(1/2)
AW IN
R SELECT
G SELECT
B SELECT
DISCHARGE
HALL SENS
HALL OUT
FOCUS N
FOCUS F
ZOOM T
ZOOM W
AF MODE
AF CONT
AGC CONT
MAN GAIN
AE
X501 8MHz
REC
CAM 4.9V (CN304 ④)
CAM POWER
CAM CS
CAM SO
CAM SI
SCK
LANC IN
LANC OUT
Q505(1/2)
XIRQ
IRQ
D503
RESET
CCD DET SW
ZOOM KEY
MODE B
IC508 VOLTAGE DETECT
VDD
SS4.9V (CN305 ⑫)
Q504
D502
DA SSW
DA LDO
DA LDI
TG STB
JCS
IC504 EVR/D-A CONVERTER
VCC
VDD
VSS
DI
CLK
LD
IRES REF
AGC REF
HALL GAIN
HALL OS
FADER MODE
AE OFFSET
FADER
FOCUS SPEED
ZOOM SPEED
M AGC CONT
SHOT LEV
CAM 4.9V (CN304 ④)
REF 3.5V (IC652 ①)
REF 1V (IC652 ⑧)
IRIS CONT
IRIS REF
HALL OS
HALL GAIN
IC656 (1/4) HALL OUT AMP
IC651 (1/2) IRIS DRIVE
IC651 (1/2) BIAS(+) CONTROL
REF 2V (IC652 ⑭)
CN651
DRIVE(+)
DRIVE(−)
CONT(+)
CONT(−)
BIAS(+)
HALL(−)
HALL(+)
BIAS(−)
IRIS MOTOR
IC656 Q655 (1/3) BIAS CURRENT CONTROL
IC653 ZOOM DRIVER
DO
DI
C
MI
MO
Vcc
CN652
ZOOM W
ZOOM T
ZOOM MOTOR
Q653,654,656 CURRENT LIMITER
Q652 AF UNREG SWITCH
CAM 4.9V (CN304 ④)
CN653
AF UNREG
AF CONT
FOCUS F
FOCUS N
CN654
UNREG (CAM DC-DC CONVERTER)
CN305
CAM CS
DATA TO MASTER
DATA TO SLVE
SCK
LANC TO CAM
CAM TO LANC
SYSTEM RESET
AF DISPLAY
DATA TO MODE
DATA TO CAM
SYSTEM CONTROL (VA-68)
DIGITAL TITLER (VA-68)
CN655
JCS
JSI
JSCK
J16
IC652 V REF
V+
REF 3.5V
REF 2V
REF 1V
LENS BLOCK (See Page 117)
AF BOARD
IC1 FOCUS MOTOR DRIVE FOCUS SENSOR AMP
IC2 AUTO FOCUS CONTROL
AF UNREG
VBATT
Vcc
VDD
COMP
H/L
MODE 1
MODE 2
MODE
CLOCK
CLK
X OUT
X IN
X1
A
B
NN
FF
MAC
FAR
D102
D103 (1/2) D101
D103 (2/2)
MO NN
MO FF
CN3
AUTO FOCUS MOTOR
AF UNREG
IR+
IR−
CN2
Q1 IR LED
IR DR
IR FB
INFRARED TRANSMITTER
A IN
COM
B IN
A OUT
B OUT
CN1
INFRARED DETECTOR
AF UNREG
AF CONT
FOCUS FAR
FOCUS NEAR
Q2
Q3
NEAR
FAR
CN4
FOCUS NEAR SENSOR
FOCUS FAR SENSOR

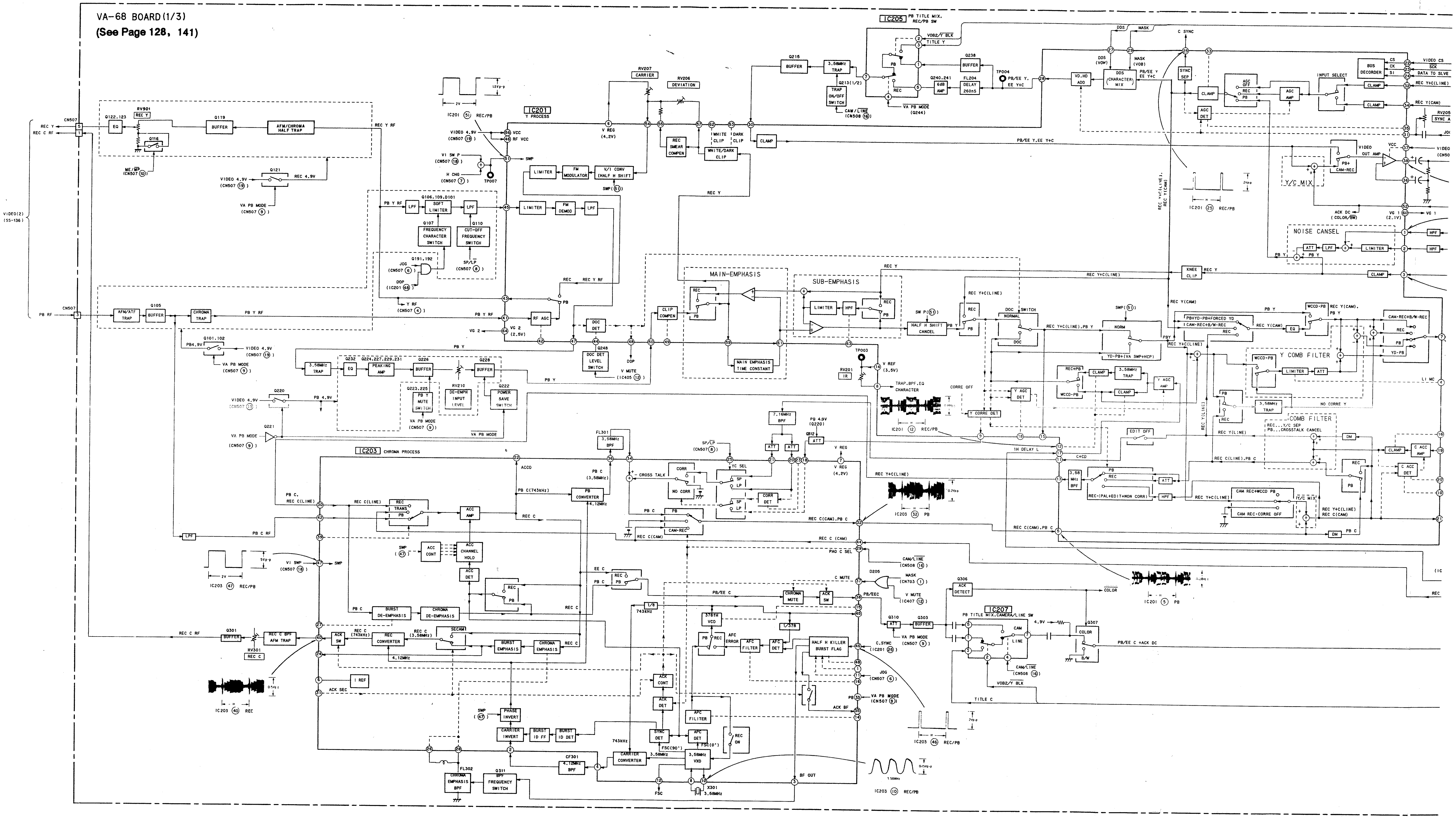
3-6. TITLER BLOCK DIAGRAM

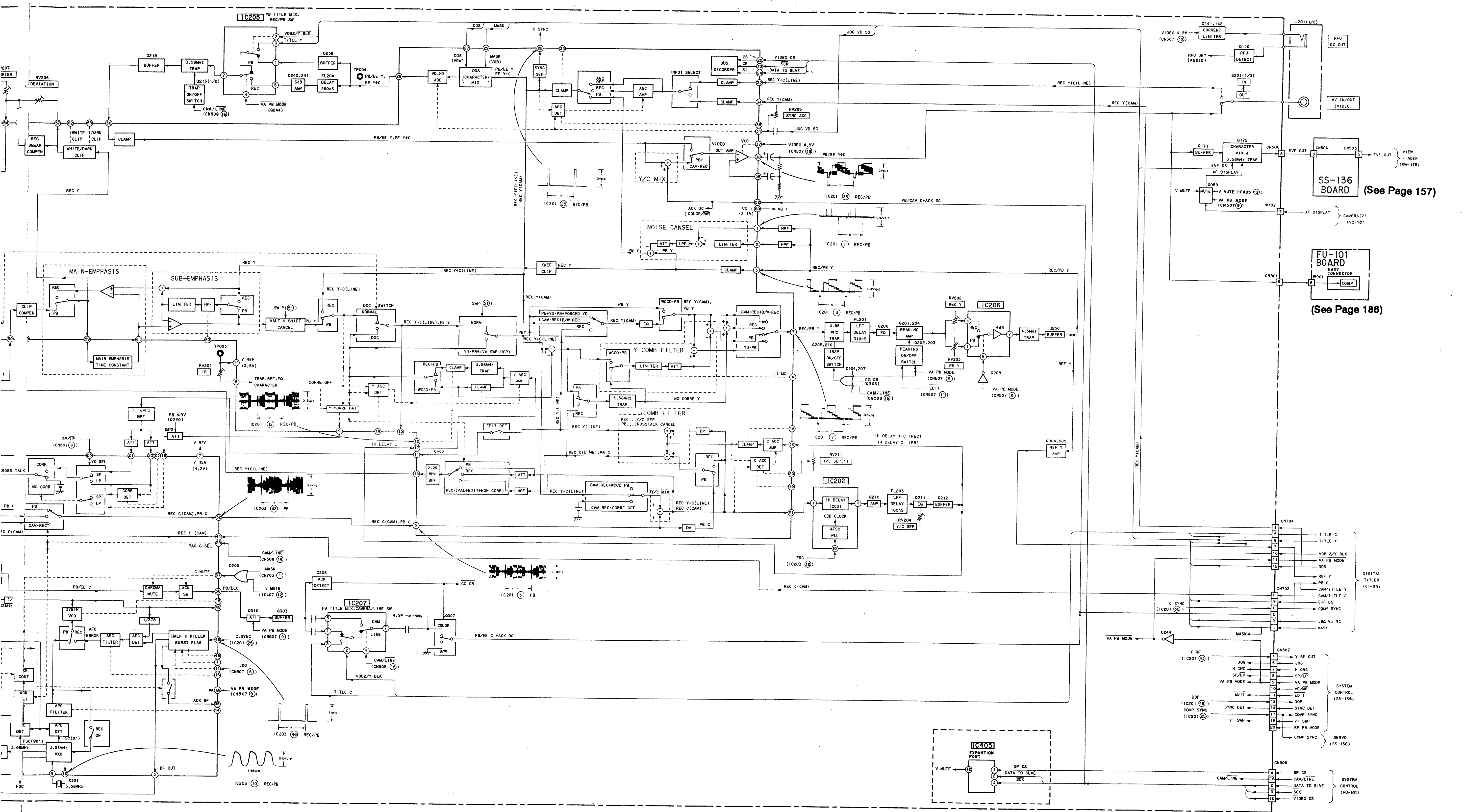

CT-39 BOARD
(See Page 124)
(See Page 128, 141)
VA-68 BOARD
IC702 TITLE MEMORY(SRAM)
IC703 (1/2) A-D CONV.
SYNC-TIP CLAMP
COMPARATOR
IC701 DIGITAL TITLE PROCESS
IC703 (1/2) MATRIX
PARALLEL-SERIAL CONVERSION
H TIMING GENERATOR
INTERNAL H GENERATOR
V TIMING GENERATOR (SCROLL)
CLOCK GENERATOR
OSC
COMMAND DECODER
PULSE SHAPER
Y DELAY
YR,YG,YB SYNTHESIS
CR,CG,CB SYNTHESIS
DY MATRIX
DR,DB MATRIX
CLAMP
GC
TRACKING TH
RV703
CT701
CONTOROLLER FREQUENCY
Q701
Q702
Q703
Q706
Q720
Q800
Q726,727
Q728
DC BIAS
IC707 TITLE MIX
IC708 TITLE MIX
IC709
IC713
Q729,730
Q704
D905
IC901 CHARACTER GENERATOR
SYNC GEN
MIX
SERVO (SS-136)
SYSTEM CONTROL (SS-136)
SYSTEM CONTROL (FU-101)
CAMERA(1) (VC-95)
VIDEO(1) (VA-68)
RF SWP
JOG
DS ON
JOG VD
SYNC DET
VA PB MODE
TITLE CS
S RAM CS
CG STB
V MUTE
DATA TO MASTER
SCK
DATA TO SLVE
DATA TO SLAVE
C SYNC
Y OUT
C OUT
FADER
CAM Y
CAM C
FADER CONT
REF Y
TITLE C
TITLE Y
VOB2/Y BLK
VA PB MODE
DOS
PB C
COMP SYNC
CAM/TITLE Y
CAM/TITLE C
MASK
JOG VD SG
EVF DS
REF C
BLK
VOB 2
CN705
CN704
CN703
W701
W704
CN705 ② REC/PB
IC701 ㊲ REC/PB
IC701 ㊵ REC/PB
CN705 ⑤ REC/PB
CN705 ⑥ REC/PB
EVER DC (CN705 ⑮)
VIDEO 4 (CN705
RF SW P
SS4.9V (W704 ⑨)
SS 4.9V (W704 ⑨)
VA PB MODE (CN705 ⑬)
VA PB MODE (W704 ⑪)
JOG (CN705 ④)
4.9V
5Vp-p
2V
H
VCO
STUP
VOB2
VOW1
VOB1
VOW2
VOW3
ON
OFF

09


IC702 TITLE MEMORY(SRAM)
IC703 (1/2) A-D CONV.
SYNC-TIP AMP
COMPARATOR
S RAM CS
Q701
CS
VDD
EVER DC (CN705 ⑮)
WE OE
PARALLEL-SERIAL CONVERSION
H TIMING GENERATOR
OSC
INTERNAL H GENERATOR
CLOCK GENERATOR
V TIMING GENERATOR (SCROLL)
PULSE SHAPER
Q726,727
CT701
CONTOROLLER FREQUENCY
COMMAND DECODER
DATA TO MASTER
CS
SCK
SI
JOG VD
Q702
Q703
Q706
JOG (CN705 ④)
Q720
Q800
VA PB MODE
VA PB MODE (W704 ⑪)
REC/PB
IC701 DIGITAL TITLE PROCESS
Y' DELAY
YR,YG,YB SYNTHESIS
CR,CG,CB SYNTHESIS
H AREA
V AREA
DL0 DL1 DL2
IC701 ㊵ REC/PB
5Vp-p
RF SWP
RF SW P
SS4.9V (W704 ⑨)
IC703 (1/2) MATRIX
DY MATRIX
DR,DB MATRIX
GC
CLAMP
YT BLK
CT BLK
CLP4
VIDEO 4.9V (CN705 ⑰)
IC704 ENCODER
VIDEO SW
REF Y
VIDEO IN 1
VIDEO IN 2
SUB OUT
VIDEO OUT
FRAME IN
FRAME
M/S
Y/C MIX
SYNC MIX
SYNC IN
C SYNC SEP
AFC DET
AFC ERROR
1/32
32fH Vco
X703 500kHz
FREE RJN CON
CLP1,CLP2 GEN
BGP GEN
V SYNC SEP
SYNC DET
HD OUT
V SYNC OUT
SYNC DET OUT
C SYNC OUT
Q708
MODULATOR
VCA
3.58MHz BPF
Q707 BUFFER
Q801 BUFFER
TITLE Y
TITLE C
BURST LEVEL DET
90°
180°
1/4
4FSC VCXO
CT702 4fSC FREQUENCY
X701
1.2Vp-p
14.3MHz
Q705,709,710
PHASE SHIFT
REF C
RV702 CHROMA PHASE/GAIN
ACC AMP
ACC DET
BURST GATE
APC DET
KILLER DET
ID KILLER
KILLER
IC704 ⑳ REC/PB
VIDEO 4.9V (CN705 ⑰)
BG P
HD IN,PAL/NTSC
1/2
IC901 CHARACTER GENERATOR CONTROL
POUP
XPON
LPF
VCO
V CON
XVCO
D911
CT902
DDS CARACTOR POSITION
SS 4.9V (W704 ⑨)
VDD
JOG VD SG
JOG VD
SYNC
JOG
SYNC GEN
PHASE COMP
ESY1
C SYNC
S DET
SYNC DET
MUTE
V MUTE
BLK
MASK
MIX
STUP
VOB2
VOB1
VOW1
VOW2
VOW3
DOS
EVF DS
DS ON
ON
OFF
IC902 CHARACTER GENERATOR
SS 4.9V (W704 ⑨)
CG STB
SCK
DATA TO SLVE
STB
CLK
DATA
V BLK
VG
OSC 0
OSC 1
CT901 CHARACTOR GENERATOR SG FREQUENCY
IC707 TITLE MIX
IC708 TITLE MIX
Q728 DC BIAS
IC713
Q729,730
JOG (CN705 ④)
Q704
VOB 2
D905
PB
VA PB MODE (CN705 ⑬)
IC709
VA PB MODE (W704 ⑪)
REF C
TITLE C
TITLE Y

3-7. VIDEO (1) BLOCK DIAGRAM

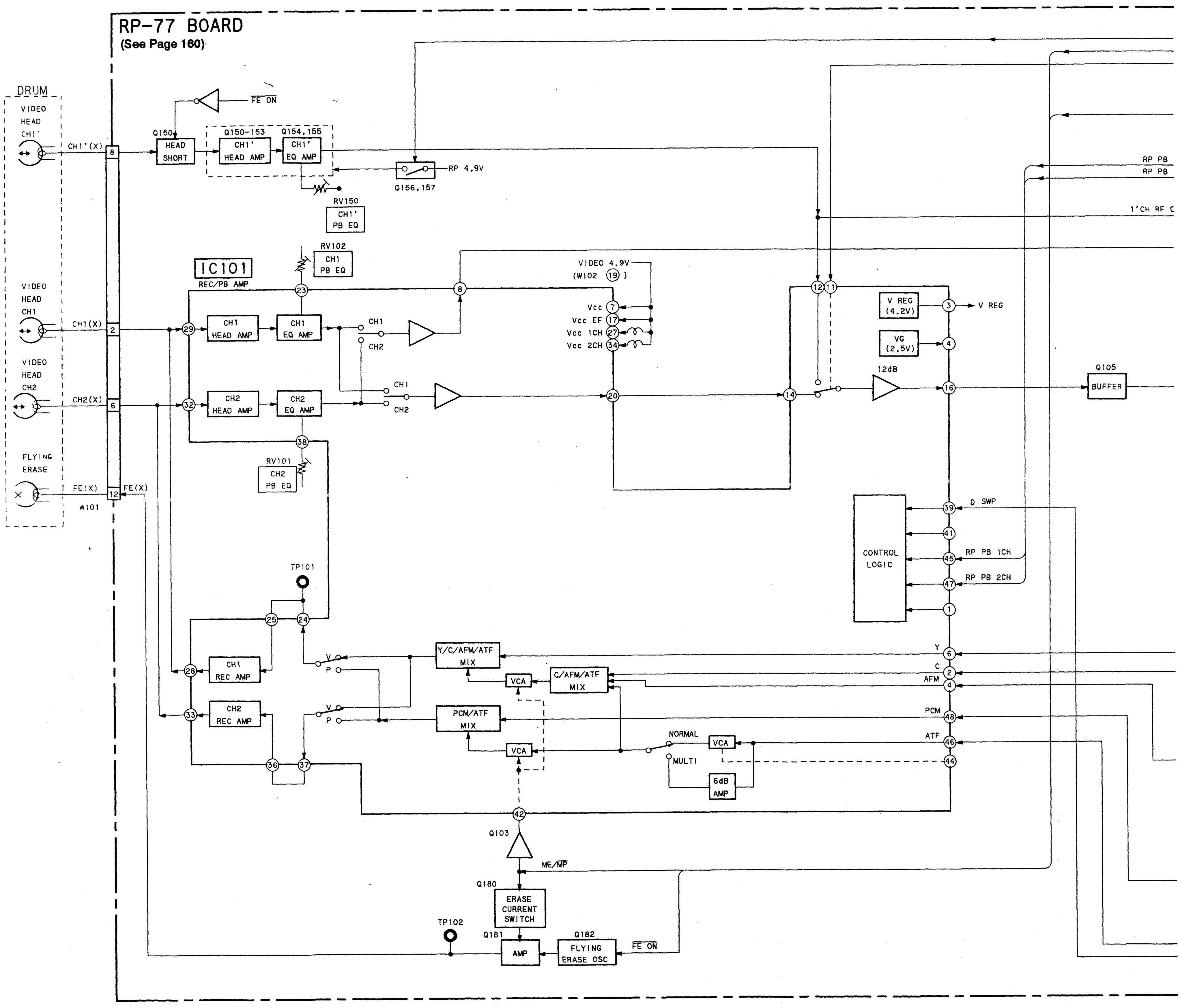

VA-68 BOARD(1/3)
(See Page 128, 141)
VIDEO(2) (55-136)
CN507
REC Y
REC C RF
PB RF
Q122,123
EQ
RV901
REC Y
Q116
Q119
BUFFER
AFM/CHROMA HALF TRAP
REC Y RF
ME/MP (CN507 ⑩)
Q121
REC 4.9V
VIDEO 4.9V (CN507 ⑲)
VA PB MODE (CN507 ⑨)
AFM/ATF TRAP
Q105
BUFFER
CHROMA TRAP
PB Y RF
IC201
Y PROCESS
IC201 (51) REC/PB
VIDEO 4.9V (CN507 ⑲)
VCC
RF VCC
VI SW P (CN507 ⑱)
SWP
H CHG (CN507 ⑦)
TP007
Q106,109,D101
LPF
SOFT LIMITER
Q107
FREQUENCY CHARACTER SWITCH
Q110
CUT-OFF FREQUENCY SWITCH
SP/LP (CN507 ⑧)
Q191,192
JOG (CN507 ⑥)
DOP (IC201 (48))
LIMITER
FM DEMOD
FM MODULATOR
V/I CONV (HALF H SHIFT)
RV207
CARRIER
RV206
DEVIATION
V REG (4.2V)
REC SMEAR COMPEN
WHITE CLIP
DARK CLIP
WHITE/DARK CLIP
CLAMP
REC Y
RF AGC
VG 2 (2.5V)
DOC DET
Q248
DOC DET LEVEL SWITCH
V MUTE (IC405 ⑫)
DOP
CLIP COMPEN
MAIN-EMPHASIS
MAIN EMPHASIS TIME CONSTANT
SUB-EMPHASIS
LIMITER
HPF
HALF H SHIFT CANCEL
SW P (51)
TP003
V REF (3.5V)
RV201
IR
TRAP.BPF.EQ CHARACTER
CORRE OFF
Y CORRE DET
IC201 ⑫ REC/PB
Q101,102
PB4.9V
Q232
Q224,227,229,231
PEAKING AMP
Q226
BUFFER
Q228
3.58MHz TRAP
EQ
Q223,225
PB Y MUTE SWITCH
RV210
DE-EMPH INPUT LEVEL
Q222
POWER SAVE SWITCH
Q220
PB 4.9V
Q221
VA PB MODE
IC205
PB TITLE MIX. REC/PB SW
VOB2/Y BLK
TITLE Y
Q215
BUFFER
3.58MHz TRAP
Q213(1/2)
TRAP ON/OFF SWITCH
CAM/LINE (CN508 ⑯)
Q238
BUFFER
Q240,241
6dB AMP
FL204
DELAY 260nS
TP004
PB/EE Y, EE Y+C
VA PB MODE (Q244)
DDS
MASK
C SYNC
VD,HD ADD
DDS (VOW)
DDS (CHARACTER) MIX
MASK (VOB)
PB/EE Y EE Y+C
SYNC SEP
CLAMP
AGC DET
AGC OFF
AGC AMP
INPUT SELECT
BUS DECORDER
CS
CK
SI
VIDEO CS
SCK
DATA TO SLVE
REC Y+C(LINE)
REC Y(CAM)
RV205 SYNC
PB/EE Y,EE Y+C
VIDEO OUT AMP
VCC
PB+ CAM-REC
Y/C MIX
REC Y+C(LINE), REC Y(CAM)
IC201 (25) REC/PB
ACK DC (COLOR/BW)
VG 1 (2.1V)
NOISE CANSEL
ATT
LPF
LIMITER
HPF
KNEE CLIP
REC Y+C(LINE)
REC Y(CAM)
WCCD-PB
PB+YD-PB+FORCED YD
CAM-REC+B/W-REC
CAM-REC+B/W-REC
YD-PB
Y COMB FILTER
WCCD+PB
NO CORRE Y
COMB FILTER
REC...Y/C SEP
PB...CROSSTALK CANCEL
DOC SWITCH
NORMAL
NORM
YD-PB+(VA SWP+HCP)
REC+PB
3.58MHz TRAP
Y AGC AMP
WCCD-PB
EDIT OFF
1H DELAY L
C+CD
3.58 MHz BPF
REC-(PAL+EDIT+NON CORR)
CAM REC+WCCD PB
CAM REC-CORRE OFF
Y/C MIX
C ACC AMP
C ACC DET
DM
REC C(LINE),PB C
REC C(CAM),PB C
IC203
CHROMA PROCESS
ACCD
FL301
3.58MHz BPF
PB C (3.58MHz)
PB C(743kHz)
PB CONVERTER
4.12MHz
CROSS TALK
CORR
NO CORR
YC SEL
SP LP
CORR DET
7.16MHz BPF
ATT
PB 4.9V (Q220)
Q212
V REG (4.2V)
REC Y+C(LINE)
SP/LP (CN507 ⑧)
IC203 (32) PB
PB C, REC C(LINE)
REC C(LINE)
TRANS
ACC AMP
ACC CONT
ACC CHANNEL HOLD
ACC DET
SWP (47)
CAM-REC
REC C(CAM)
REC C (CAM)
PAD C SEL
CAM/LINE (CN508 ⑯)
D205
MASK (CN703 ①)
C MUTE
V MUTE (IC407 ⑫)
CHROMA MUTE
ACK SW
PB/EE C
EE C
BURST DE-EMPHASIS
CHROMA DE-EMPHASIS
1/8 743kHz
378fH VCO
AFC ERROR
AFC FILTER
AFC DET
1/378
HALF H KILLER BURST FLAG
C.SYNC (IC201 (25))
JOG (CN507 ⑥)
VA PB MODE (CN507 ⑨)
ACK BF
LPF
PB C RF
VI SWP (CN507 ⑱)
IC203 (47) REC/PB
Q301
BUFFER
REC C BPF
AFM TRAP
RV301
REC C
REC C RF
ACK SW
REC C (743kHz)
REC CONVERTER
REC C (3.58MHz)
SECAM
BURST EMPHASIS
CHROMA EMPHASIS
4.12MHz
I REF
ACK SEC
IC203 (40) REC
ACK CONT
ACK DET
APC FILTER
APC DET
SYNC DET
REC ON
PHASE INVERT
CARRIER INVERT
BURST ID FF
BURST ID DET
743kHz
CARRIER CONVERTER
3.58MHz
3.58MHz VXO
FSC(90°)
FSC(0°)
FL302
CHROMA EMPHASIS BPF
Q311
BPF FREQUENCY SWITCH
CF301
4.12MHz BPF
FSC
X301 3.58MHz
BF OUT
IC203 ⑩ REC/PB
IC203 (46) REC/PB
Q306
ACK DETECT
COLOR
IC207
PB TITLE MIX,CAMERA/LINE SW
Q310
ATT
Q303
BUFFER
VA PB MODE (CN507 ⑨)
CAM
LINE
CAM/LINE (CN508 ⑯)
VOB2/Y BLK
TITLE C
4.9V
Q307
COLOR
B/W
PB/EE C +ACK DC
IC201 ⑤ PB
REC


IC205 PB TITLE MIX. REC/PB SW
VOB2/Y BLK
TITLE Y
BUFFER
Q215
3.58MHz TRAP
Q213(1/2)
TRAP ON/OFF SWITCH
CAM/LINE (CN508 ⑯)
Q238 BUFFER
Q240,241 6dB AMP
FL204 DELAY 260nS
VA PB MODE (Q244)
TP004
PB/EE Y. EE Y+C
VD.HD ADD
DDS (VOW)
DDS (CHARACTER) MIX
MASK (VOB)
PB/EE Y EE Y+C
C SYNC
SYNC SEP
CLAMP
AGC OFF REC PB
AGC DET
AGC AMP
INPUT SELECT
BUS DECORDER
CS CK SI
VIDEO CS
SCK
DATA TO SLVE
REC Y+C(LINE)
REC Y(CAM)
RV205 SYNC AGC
JOG VD SG
VIDEO 4.9V (CN507 ⑲)
VIDEO OUT AMP
VCC
PB+ CAM•REC
Y/C MIX
PB/EE Y+C
IC201 ㊳ REC/PB
IC201 ㉕ REC/PB
PB/CAM C+ACK DC
ACK DC (COLOR/BW)
VG 1 (2.1V)
NOISE CANSEL
ATT LPF LIMITER HPF
IC201 ① REC/PB
KNEE CLIP
REC Y
REC/PB Y
RV206 DEVIATION
REC SMEAR COMPEN
WHITE CLIP
DARK CLIP
WHITE/DARK CLIP
PB/EE Y,EE Y+C
MAIN-EMPHASIS
SUB-EMPHASIS
CLIP COMPEN
LIMITER HPF
MAIN EMPHASIS TIME CONSTANT
HALF H SHIFT CANCEL
SW P(51)
TP003
V REF (3.5V)
RV201 IR
TRAP,BPF,EQ CHARACTER
IC201 ⑫ REC/PB
CORRE OFF
DOC SWITCH NORMAL DOC
SWP(51)
NORM
YD•PB+(VA SWP+HCP)
PB+YD•PB+FORCED YD
CAM•REC+B/W•REC
WCCD•PB
EQ
CAM•REC+B/W•REC
YD•PB
Y COMB FILTER
LIMITER ATT
3.58MHz TRAP
Y AGC DET
Y CORRE DET
COMB FILTER REC...Y/C SEP PB...CROSSTALK CANCEL
NO CORRE Y
REC Y(LINE)
1H DELAY L
EDIT OFF
C+CD
DM
IC201 ③ REC/PB
FL201 LPF DELAY 310nS
Q206 EQ
Q201,204 PEAKING AMP
Q202,203 PEAKING ON/OFF SWITCH
Q205,216 TRAP ON/OFF SWITCH
D204,207 COLOR (Q306)
CAM/LINE (CN508 ⑯)
RV202 REC Y
IC206
RV203 PB Y
6dB
4.5MHz TRAP
Q250 BUFFER
Q209
VA PB MODE (CN507 ⑨)
EDIT (CN507 ⑪)
REF Y
IC201 ⑦ REC/PB
1H DELAY Y+C (REC) 1H DELAY C (PB)
Q004,005 REF Y AMP
C ACC AMP
C ACC DET
RV211 Y/C SEP(1)
IC202
1H DELAY (CCD)
CCD CLOCK
4FSC PLL
Q210 AMP
FL203 LPF DELAY 180nS
Q211 EQ
Q212 BUFFER
RV204 Y/C SEP
FSC (IC203 ⑫)
7.16MHz BPF
PB 4.9V (Q220)
Q212 ATT
V REG (4.2V)
SP/LP (CN507 ⑧)
CROSS TALK
CORR NO CORR
Y/C SEL
SP LP
CORR DET
REC Y+C(LINE)
IC203 ㉜ PB
3.58MHz BPF
REC•(PAL+EDIT+NON CORR)
CAM REC+WCCD PB
CAM REC+CORRE OFF
Y/C MIX
REC C(LINE),PB C
REC C(CAM),PB C
REC C (CAM)
PAG C SEL
CAM/LINE (CN508 ⑯)
D205
MASK (CN703 ①)
V MUTE (IC407 ⑫)
C MUTE
PB/EEC
Q306 ACK DETECT
COLOR
REC C(CAM)
IC201 ⑤ PB
PB/EE C
CHROMA MUTE
ACK SW
378fH VCO
fH/378
AFC ERROR
AFC FILTER
AFC DET
HALF H KILLER BURST FLAG
Q310 ATT
Q303 BUFFER
VA PB MODE (CN507 ⑨)
C.SYNC (IC201 ㉕)
IC207 PB TITLE MIX,CAMERA/LINE SW
CAM LINE
Q307 COLOR B/W
PB/EE C +ACK DC
CAM/LINE (CN508 ⑯)
VOB2/Y BLK
TITLE C
JOG (CN507 ⑥)
VA PB MODE (CN507 ⑨)
ACK BF
APC FILITER
APC DET
REC ON
FSC(90°) FSC(0°)
3.58MHz VXO
X301 3.58MHz
FSC
BF OUT
IC203 ㊻ REC/PB
IC203 ⑩ REC/PB
J201(1/2)
Q141,142 CURRENT LIMITER
VIDEO 4.9V (CN507 ⑲)
Q140 RFU DETECT
RFU DET (AUDIO)
RFU DC OUT
S201(1/3) IN OUT
AV IN/OUT (VIDEO)
Q171 BUFFER
Q172 CHARACTER MIX & 3.58MHz TRAP
CN506 EVF OUT
EVF DS
AF DISPLAY
Q059 MUTE
V MUTE
V MUTE (IC405 ②)
VA PB MODE (CN507 ⑨)
W702
SS-136 BOARD
CN506 CN503
EVF OUT
VIEW FINDER (SW-175)
AF DISPLAY
CAMERA (VC-95)
FU-101 BOARD
EASY CONNECTOR
COMP
CN901 W901
REC Y(CAM)
CN704
TITLE C
TITLE Y
VOB 2/Y BLK
VA PB MODE
DDS
REF Y
PB C
CAM/TITLE Y
CAM/TITLE C
EVF DS
COMP SYNC
JOG VD SG
MASK
DIGITAL TITLER (CT-39)
CN703
C SYNC (IC201 ㉟)
VA PB MODE
Q244
CN507
Y RF (IC201 ㊸)
Y RF OUT
JOG
H CHG
SP/LP
VA PB MODE
ME/MP
EDIT
DOP (IC201 ㊹)
COMP SYNC (IC201 ㉙)
SYNC DET
VI SWP
RP PB MODE
SYSTEM CONTROL (SS-136)
COMP SYNC
SERVO (SS-136)
IC405 EXPANTION PORT
V MUTE
SP CS
DATA TO SLVE
SCK
CN508
CAM/LINE
SP CS
DATA TO SLVE
SCK
VIDEO CS
SYSTEM CONTROL (FU-101)

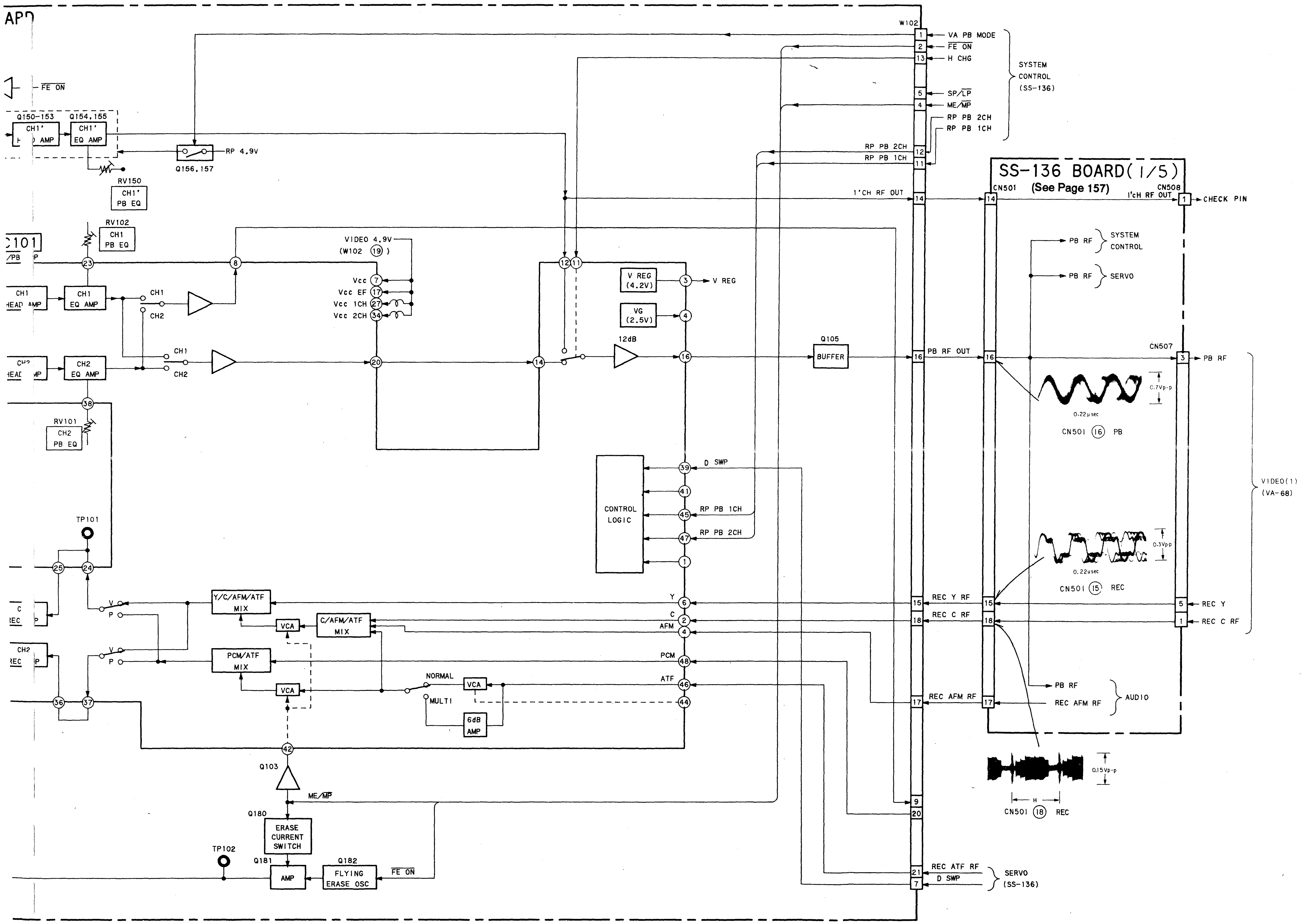
(See Page 157)

(See Page 186)

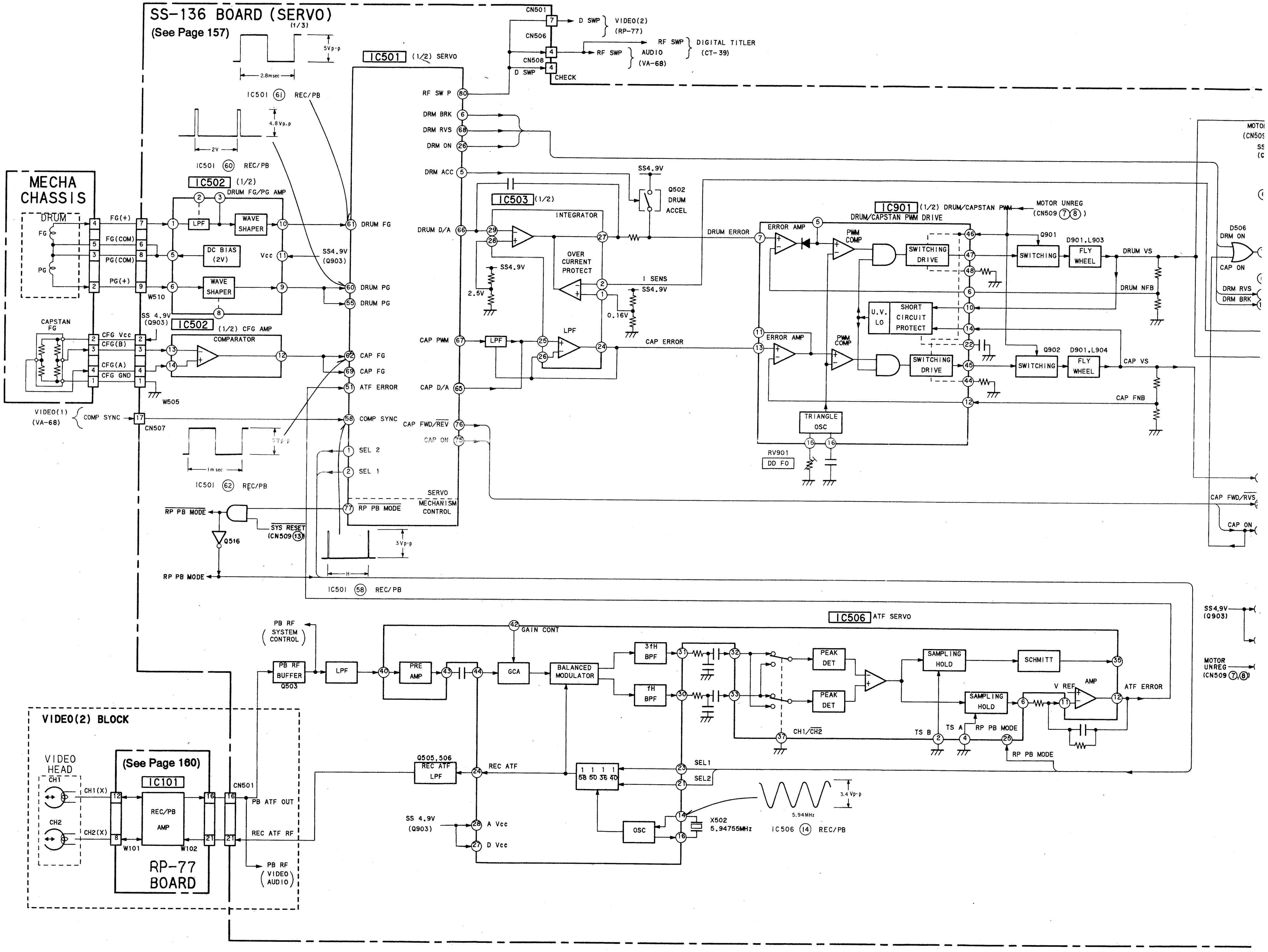
3-8. VIDEO (2) BLOCK DIAGRAM


RP-77 BOARD
(See Page 160)
DRUM
VIDEO HEAD CH1'
VIDEO HEAD CH1
VIDEO HEAD CH2
FLYING ERASE
CH1'(X)
CH1(X)
CH2(X)
FE(X)
FE(X)
W101
FE ON
Q150
HEAD SHORT
Q150-153
CH1' HEAD AMP
Q154,155
CH1' EQ AMP
Q156,157
RP 4.9V
RV150
CH1' PB EQ
IC101
REC/PB AMP
RV102
CH1 PB EQ
CH1 HEAD AMP
CH1 EQ AMP
CH2 HEAD AMP
CH2 EQ AMP
CH1
CH2
RV101
CH2 PB EQ
VIDEO 4.9V
(W102 ⑲)
Vcc
Vcc EF
Vcc 1CH
Vcc 2CH
V REG (4.2V)
V REG
VG (2.5V)
12dB
Q105
BUFFER
RP PB
RP PB
1'CH RF C
CONTROL LOGIC
D SWP
RP PB 1CH
RP PB 2CH
TP101
CH1 REC AMP
CH2 REC AMP
V
P
Y/C/AFM/ATF MIX
C/AFM/ATF MIX
PCM/ATF MIX
VCA
VCA
NORMAL
MULTI
VCA
6dB AMP
Y
C
AFM
PCM
ATF
Q103
ME/MP
Q180
ERASE CURRENT SWITCH
TP102
Q181
AMP
Q182
FLYING ERASE OSC
FE ON
8 2 6 12
29 32 23 38 8 7 17 27 34 20 12 11 14 3 4 16 39 41 45 47 1 6 2 4 48 46 44 42 25 24 28 33 36 37

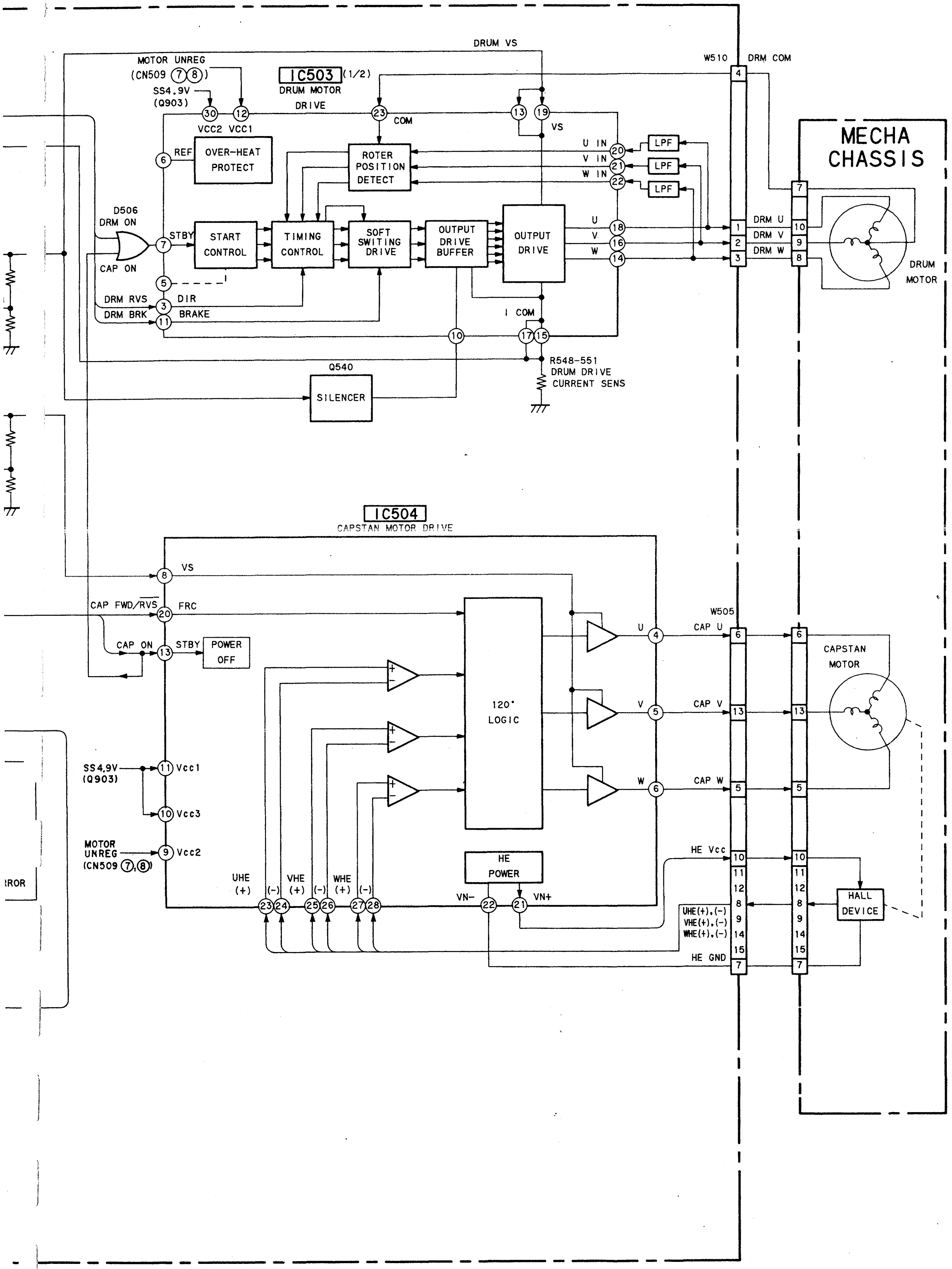
09


AP⅂
FE ON
Q150-153
CH1'
AMP
Q154,155
CH1'
EQ AMP
RP 4.9V
Q156,157
RV150
CH1'
PB EQ
RV102
CH1
PB EQ
101
/PB
VIDEO 4.9V
(W102 ⑲)
Vcc
Vcc EF
Vcc 1CH
Vcc 2CH
CH1
HEAD AMP
CH1
EQ AMP
CH1
CH2
CH2
HEAD AMP
CH2
EQ AMP
RV101
CH2
PB EQ
V REG
(4.2V)
V REG
VG
(2.5V)
12dB
Q105
BUFFER
CONTROL
LOGIC
D SWP
RP PB 1CH
RP PB 2CH
TP101
Y/C/AFM/ATF
MIX
C/AFM/ATF
MIX
VCA
PCM/ATF
MIX
VCA
NORMAL
MULTI
VCA
6dB
AMP
Y
C
AFM
PCM
ATF
Q103
ME/MP
Q180
ERASE
CURRENT
SWITCH
TP102
Q181
AMP
Q182
FLYING
ERASE OSC
FE ON
W102
VA PB MODE
FE ON
H CHG
SP/LP
ME/MP
RP PB 2CH
RP PB 1CH
SYSTEM
CONTROL
(SS-136)
RP PB 2CH
RP PB 1CH
1'CH RF OUT
PB RF OUT
REC Y RF
REC C RF
REC AFM RF
REC ATF RF
D SWP
SERVO
(SS-136)
SS-136 BOARD(1/5)
(See Page 157)
CN501
CN508
1'cH RF OUT
CHECK PIN
PB RF
SYSTEM
CONTROL
PB RF
SERVO
CN507
PB RF
0.7Vp-p
0.22μsec
CN501 ⑯ PB
0.3Vpp
0.22usec
CN501 ⑮ REC
REC Y
REC C RF
VIDEO(1)
(VA-68)
PB RF
REC AFM RF
AUDIO
0.15Vp-p
H
CN501 ⑱ REC

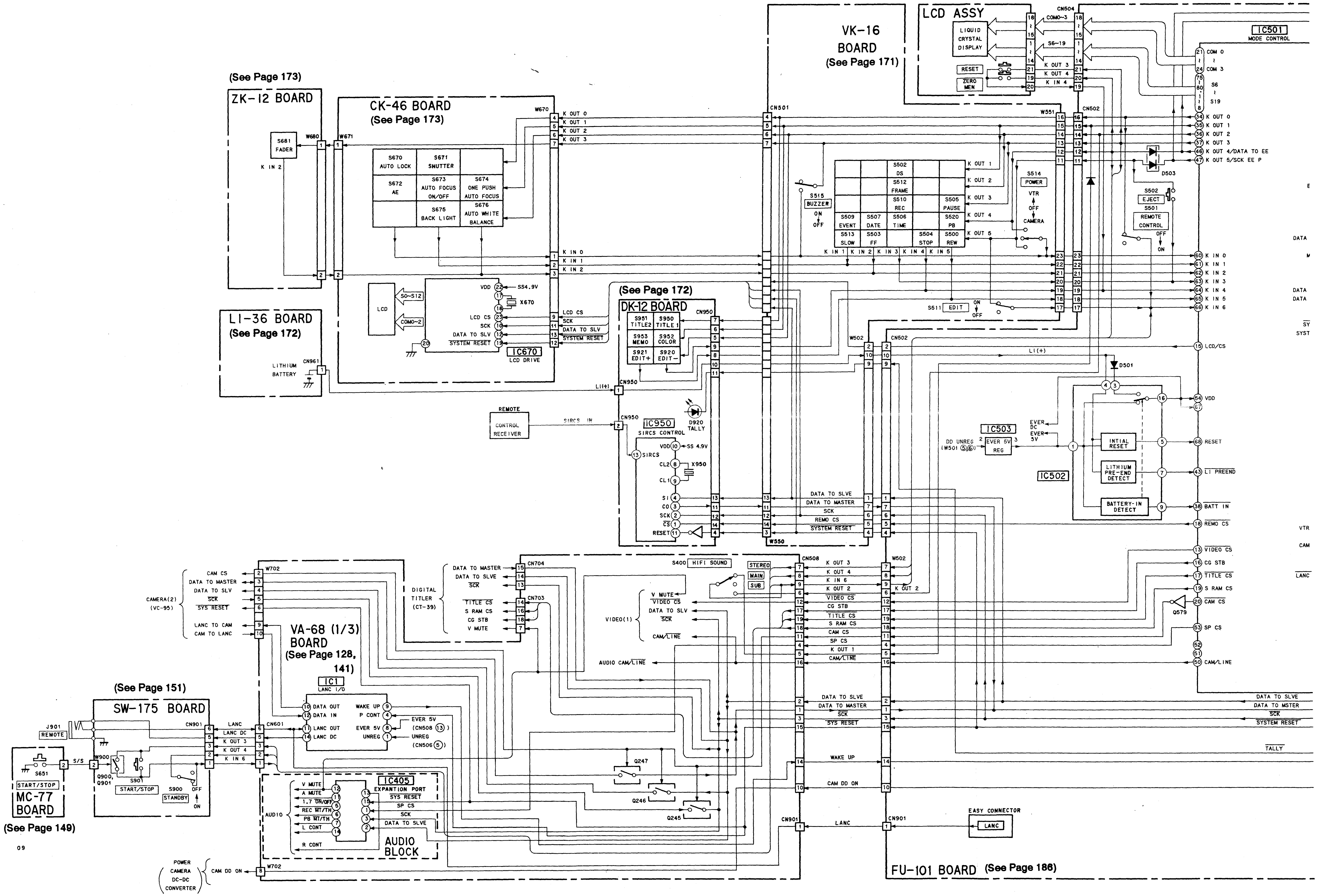
3-9. SERVO BLOCK DIAGRAM

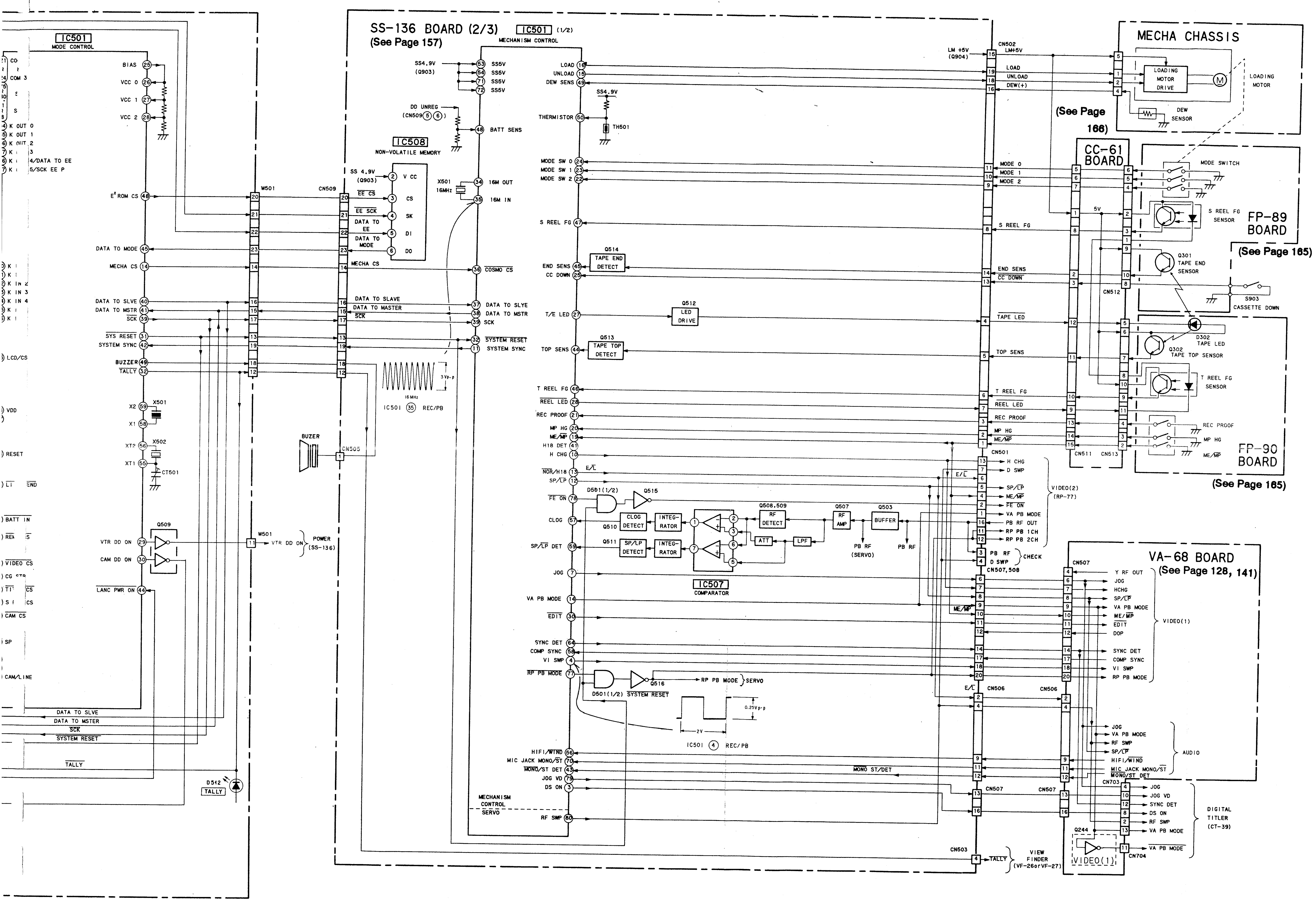

SS-136 BOARD (SERVO) (1/3)
(See Page 157)
5Vp-p
2.8msec
IC501 (61) REC/PB
4.8Vp-p
2V
IC501 (60) REC/PB
IC501 (1/2) SERVO
IC502 (1/2) DRUM FG/PG AMP
LPF
WAVE SHAPER
DC BIAS (2V)
Vcc
WAVE SHAPER
SS4.9V (Q903)
W510
SS 4.9V (Q903)
IC502 (1/2) CFG AMP
COMPARATOR
W505
MECHA CHASSIS
DRUM
FG
PG
FG(+)
FG(COM)
PG(COM)
PG(+)
CAPSTAN FG
CFG Vcc
CFG(B)
CFG(A)
CFG GND
VIDEO(1) (VA-68)
COMP SYNC
CN507
5Vp-p
1msec
IC501 (62) REC/PB
RP PB MODE
SYS RESET (CN509 (13))
Q516
RP PB MODE
3Vp-p
H
IC501 (58) REC/PB
DRUM FG
DRUM PG
DRUM PG
CAP FG
CAP FG
ATF ERROR
COMP SYNC
SEL 2
SEL 1
RP PB MODE
SERVO MECHANISM CONTROL
CN501
D SWP
VIDEO(2) (RP-77)
CN506
RF SWP
AUDIO (VA-68)
RF SWP
DIGITAL TITLER (CT-39)
CN508
D SWP
CHECK
RF SW P
DRM BRK
DRM RVS
DRM ON
DRM ACC
DRUM D/A
CAP PWM
CAP D/A
CAP FWD/REV
CAP ON
IC503 (1/2)
INTEGRATOR
SS4.9V
2.5V
OVER CURRENT PROTECT
I SENS
SS4.9V
0.16V
LPF
CAP ERROR
SS4.9V
Q502 DRUM ACCEL
DRUM ERROR
IC901 (1/2) DRUM/CAPSTAN PWM
DRUM/CAPSTAN PWM DRIVE
MOTOR UNREG (CN509 (7)(8))
ERROR AMP
PWM COMP
SWITCHING DRIVE
U.V. LO
SHORT CIRCUIT PROTECT
ERROR AMP
PWM COMP
SWITCHING DRIVE
TRIANGLE OSC
RV901 DD FO
Q901
SWITCHING
D901,L903
FLY WHEEL
DRUM VS
DRUM NFB
Q902
SWITCHING
D901,L904
FLY WHEEL
CAP VS
CAP FNB
MOTO
(CN50
SS
D506
DRM ON
CAP ON
DRM RVS
DRM BRK
CAP FWD/RVS
CAP ON
SS4.9V (Q903)
MOTOR UNREG (CN509 (7)(8))
IC506 ATF SERVO
PB RF SYSTEM CONTROL
PB RF BUFFER Q503
LPF
PRE AMP
GAIN CONT
GCA
BALANCED MODULATOR
3fH BPF
fH BPF
PEAK DET
PEAK DET
SAMPLING HOLD
SAMPLING HOLD
SCHMITT
V REF
AMP
ATF ERROR
CH1/CH2
TS B
TS A
RP PB MODE
RP PB MODE
Q505,506 REC ATF LPF
REC ATF
1 1 1 1 / 58 50 36 40
SEL1
SEL2
OSC
3.4Vp-p
5.94MHz
X502 5.94755MHz
IC506 (14) REC/PB
SS 4.9V (Q903)
A Vcc
D Vcc
VIDEO(2) BLOCK
VIDEO HEAD
CH1
CH1(X)
CH2
CH2(X)
(See Page 160)
IC101
REC/PB AMP
W101
W102
RP-77 BOARD
CN501
PB ATF OUT
REC ATF RF
PB RF (VIDEO AUDIO)

09


DRUM VS
W510
DRM COM
MOTOR UNREG
(CN509 ⑦⑧)
SS4.9V
(Q903)
IC503 (1/2)
DRUM MOTOR
DRIVE
30
12
VCC2 VCC1
23
COM
13
19
VS
6
REF
OVER-HEAT
PROTECT
ROTER
POSITION
DETECT
U IN
V IN
W IN
20
21
22
LPF
LPF
LPF
MECHA
CHASSIS
D506
DRM ON
CAP ON
7
STBY
START
CONTROL
TIMING
CONTROL
SOFT
SWITING
DRIVE
OUTPUT
DRIVE
BUFFER
OUTPUT
DRIVE
U
V
W
18
16
14
DRM U
DRM V
DRM W
DRUM
MOTOR
5
DRM RVS
DRM BRK
3
11
DIR
BRAKE
I COM
10
17
15
R548-551
DRUM DRIVE
CURRENT SENS
Q540
SILENCER
IC504
CAPSTAN MOTOR DRIVE
8
VS
CAP FWD/RVS
20
FRC
CAP ON
13
STBY
POWER
OFF
120°
LOGIC
U
V
W
4
5
6
W505
CAP U
CAP V
CAP W
CAPSTAN
MOTOR
SS4,9V
(Q903)
11 Vcc1
10 Vcc3
MOTOR
UNREG
(CN509 ⑦,⑧)
9 Vcc2
HE
POWER
HE Vcc
HALL
DEVICE
UHE (+)
(-)
VHE (+)
(-)
WHE (+)
(-)
23
24
25
26
27
28
VN-
22
21
VN+
UHE(+),(-)
VHE(+),(-)
WHE(+),(-)
HE GND
ROR

3-10. SYSTEM CONTROL BLOCK DIAGRAM


ZK-12 BOARD
(See Page 173)
S681 FADER
K IN 2
CK-46 BOARD
(See Page 173)
S670 AUTO LOCK
S671 SHUTTER
S672 AE
S673 AUTO FOCUS ON/OFF
S674 ONE PUSH AUTO FOCUS
S675 BACK LIGHT
S676 AUTO WHITE BALANCE
K OUT 0
K OUT 1
K OUT 2
K OUT 3
K IN 0
K IN 1
K IN 2
LCD
IC670 LCD DRIVE
X670
LCD CS
SCK
DATA TO SLV
SYSTEM RESET
LI-36 BOARD
(See Page 172)
LITHIUM BATTERY
VK-16 BOARD
(See Page 171)
LCD ASSY
LIQUID CRYSTAL DISPLAY
RESET
ZERO MEM
IC501 MODE CONTROL
S502 DS
S512 FRAME
S510 REC
S505 PAUSE
S509 EVENT
S507 DATE
S506 TIME
S520 PB
S513 SLOW
S503 FF
S504 STOP
S500 REW
S515 BUZZER
S514 POWER
VTR
OFF
CAMERA
S502 EJECT
S501 REMOTE CONTROL
D503
S511 EDIT
(See Page 172)
DK-12 BOARD
S951 TITLE2
S950 TITLE 1
S953 MEMO
S952 COLOR
S921 EDIT+
S920 EDIT−
REMOTE CONTROL RECEIVER
SIRCS IN
IC950 SIRCS CONTROL
D920 TALLY
X950
IC503 EVER 5V REG
DD UNREG (W501 ⑤⑥)
IC502
INTIAL RESET
LITHIUM PRE-END DETECT
BATTERY-IN DETECT
D501
LCD/CS
VDD
RESET
LI PREEND
BATT IN
REMO CS
VIDEO CS
CG STB
TITLE CS
S RAM CS
CAM CS
Q579
SP CS
CAM/LINE
DATA TO SLVE
DATA TO MASTER
SCK
SYSTEM RESET
TALLY
CAMERA(2) (VC-95)
CAM CS
DATA TO MASTER
DATA TO SLV
SCK
SYS RESET
LANC TO CAM
CAM TO LANC
DIGITAL TITLER (CT-39)
TITLE CS
S RAM CS
CG STB
V MUTE
S400 HIFI SOUND
STEREO
MAIN
SUB
VIDEO(1)
CAM/LINE
AUDIO CAM/LINE
VA-68 (1/3) BOARD
(See Page 128, 141)
IC1 LANC I/O
DATA OUT
DATA IN
LANC OUT
LANC DC
WAKE UP
P CONT
EVER 5V
UNREG
IC405 EXPANTION PORT
AUDIO BLOCK
V MUTE
A MUTE
1.7 ON/OFF
REC MT/TH
PB MT/TH
L CONT
R CONT
Q247
Q246
Q245
WAKE UP
CAM DD ON
LANC
(See Page 151)
SW-175 BOARD
J901 REMOTE
S901 START/STOP
S900 STANDBY
Q900, Q901
MC-77 BOARD
(See Page 149)
S651 START/STOP
POWER CAMERA DC-DC CONVERTER
CAM DD ON
EASY CONNECTOR
FU-101 BOARD (See Page 186)



IC501
MODE CONTROL
SS-136 BOARD (2/3)
(See Page 157)
IC501 (1/2)
MECHANISM CONTROL
IC508
NON-VOLATILE MEMORY
IC507
COMPARATOR
MECHA CHASSIS
LOADING MOTOR DRIVE
LOADING MOTOR
DEW SENSOR
(See Page 166)
CC-61 BOARD
FP-89 BOARD
(See Page 165)
FP-90 BOARD
(See Page 165)
VA-68 BOARD
(See Page 128, 141)
MODE SWITCH
S REEL FG SENSOR
Q301 TAPE END SENSOR
S903 CASSETTE DOWN
D302 TAPE LED
Q302 TAPE TOP SENSOR
T REEL FG SENSOR
REC PROOF
MP HG
ME/MP
Q514 TAPE END DETECT
Q512 LED DRIVE
Q513 TAPE TOP DETECT
Q515
D501(1/2)
Q510 CLOG DETECT
Q511 SP/LP DETECT
INTEG-RATOR
Q508,509 RF DETECT
Q507 RF AMP
Q503 BUFFER
ATT
LPF
PB RF (SERVO)
PB RF
Q516
D501(1/2) SYSTEM RESET
RP PB MODE SERVO
IC501 (35) REC/PB
3Vp-p
16MHz
IC501 (4) REC/PB
0.25Vp-p
2V
X501 16MHz
16M OUT
16M IN
BUZER
CN505
W501
CN509
VTR DD ON
POWER (SS-136)
Q509
D512 TALLY
VIDEO(2) (RP-77)
CHECK
VIDEO(1)
AUDIO
DIGITAL TITLER (CT-39)
VIEW FINDER (VF-26 or VF-27)
Q244
CN502
CN501
CN503
CN506
CN507
CN507,508
CN511
CN512
CN513
CN703
CN704
MECHANISM CONTROL
SERVO
LOAD
UNLOAD
DEW SENS
THERMISTOR
TH501
BATT SENS
MODE SW 0
MODE SW 1
MODE SW 2
S REEL FG
END SENS
CC DOWN
T/E LED
TOP SENS
T REEL FG
REEL LED
REC PROOF
H18 DET
H CHG
NOR/H18
SP/LP
FE ON
CLOG
SP/LP DET
JOG
VA PB MODE
EDIT
SYNC DET
COMP SYNC
VI SWP
RP PB MODE
HIFI/WIND
MIC JACK MONO/ST
MONO/ST DET
JOG VD
DS ON
RF SWP
DATA TO SLAVE
DATA TO MASTER
SCK
DATA TO SLVE
DATA TO MSTR
SYSTEM RESET
SYSTEM SYNC
SYS RESET
BUZZER
TALLY
MECHA CS
COSMO CS
E²ROM CS
DATA TO MODE
LANC PWR ON
CAM DD ON
BIAS
VCC 0
VCC 1
VCC 2
SS 4.9V (Q903)
SS5V
DD UNREG (CN509 (5)(6))
LM +5V (Q904)
EE CS
EE SCK
DATA TO EE
DATA TO MODE
V CC
CS
SK
DI
DO
Y RF OUT
HCHG
DOP
D SWP
PB RF OUT
RP PB 1CH
RP PB 2CH

3-11. MODE CONTROL SYSTEM IC TERMINAL FUNCTION DESCRIPTION FU-101 BOARD IC501 (μPD75316)

Pin No.	Port Name	Function	I/O	Connection	Signal Name
1	S12	Segment signal output	O	LCD	S12
2	S13	Output (Four value output of 0, 1.7, 3.3, 5V) Segment terminal drive to LCD	O	LCD	S13
3	S14		O	LCD	S14
4	S15		O	LCD	S15
5	S16		O	LCD	S16
6	S17		O	LCD	S17
7	S18		O	LCD	S18
8	S19		O	LCD	S19
9	S20	Not used	O	LCD	
10	S21	Not used	O	LCD	
11	S22	Not used	O	LCD	
12	S23	Not used	O	LCD	
13	S24/BP0	Chip select signal to video IC (CXA1207) ⊔ 1V period "L" pulse	O	VA	$\overline{\text{VIDEO CS}}$
14	S25/BP1	Chip select signal to SS-136 board IC501 (CXP80116) ⊔ 1V period "L" pulse	O	SS-136 IC501	$\overline{\text{MECHA CS}}$
15	S26/BP2	Chip select signal to LCD driver (M34206) 1V period "L" pulse	O	CK-46, IC670	LED CONT
16	S27/BP3	Strobe signal for character generator (μPD6451) ⊓ 1V "H" pulse train	O	VA-68	CG STB
17	S28/BP4	Chip select to titler (CF79028) ⊔ 1V "L" pulse	O		$\overline{\text{TITEL CS}}$
18	S29/BP5	Chip select to SIRCS remote control (μPD7564) ⊔ 1V "L" pulse	O	DK-5	$\overline{\text{REMO CS}}$ REMOTE CONTROL
19	S30/BP6	Chip select to SRAM "H" when using title. Normally, "L"	O		S RAM CS
20	S31/BP7	Chip select to camera μCOM ⊓ 1V period "H" pulse	O	CAMERA	CAM CS
21	COM0	LCD to common signal output Common terminal drive output	O	LCD	COM0
22	COM1		O	LCD	COM1
23	COM2		O	LCD	COM2
24	COM3		O	LCD	COM3
25	BIAS	Output terminal for outside dividing resistance cut Power input	O	LCD	BIAS
26	VLC0	Power source for LCD drive, 3V in backup Power source 0 input terminal	I	FU-101	VLC0
27	VLC1	Power source for LCD drive, 3V in backup Power source 1 input terminal	I	FU-101	VLC1
28	VLC2	Power source for LCD drive, 3V in backup Power source 2 input terminal	I	FU-101	VLC2
29	P40	SS 5V, VTR 5V power source detection. "H" when VTR power source is turned on.	O	VA-68	VTR DD ON
30	P41	CAM 5V power source detection	O	CAMERA	$\overline{\text{CAM DD ON}}$
31	P42	Output port to reset each IC when power is turned on	O	all	$\overline{\text{SYS RESET}}$
32	P43	External tally and internal tally drive port	O	VA-68, DK-5	$\overline{\text{TALLY}}$
33	Vss	GND			Vss
34	P50	L active KEY matrix output port	O	all	K OUT0
35	P51		O	all	K OUT1
36	P52		O	all	K OUT2
37	P53		O	all	K OUT3
38	P00/INT4	Clock select to 32 kHz with "L" and to 4.19 MHz with "H" When Battery is turned on, "L" is select	I	FU-101	$\overline{\text{BATT IN}}$
39	P01/$\overline{\text{SCK}}$	Serial clock input-output terminal Serial clock (2 μS) communication	O	all	$\overline{\text{SCK}}$
40	P02/SO/SB0	Serial clock input-output terminal Serial clock (2 μS) communication	O	all	DATA TO SLV
41	P03/SI/SB1	Serial bus input terminal Serial clock (2 μS) communication	I	all	DATA TO MASTER
42	P10/INT0	(Edge detection vector interruption) System synchronization input port from CXD80116	I	SS-136 IC501	SYSTEM SYNC
43	P11/INT1	(Edge detection vector interruption) Lithium PRE END is selected with "L"	I	FU-101	$\overline{\text{LI PRE END}}$
44	P12/INT2	STABY release input Release STANDBY with "L"	I	VA-68	$\overline{\text{LANC PWR ON}}$
45	P13/TIO	E^2PROM serial communication data input EE PROM communication KEY matrix OUT is combined	I	SS-136 IC508	DATA TO MODE
46	P20/PT00	E^2PROM serial communication data input, EE PROM communication KEY matrix OUT is combined	O	SS-136 IC508	KOUT4/DATA TO EE
47	P21	E^2PROM serial communication clock output key matrix output EE PROM communication KEY matrix OUT is combined.	O	SS-136,VK-16 IC508	KOUT5/ SCK EE
48	P22/PCL	Chip select to E^2PROM	O	SS-136 IC508	$\overline{\text{EE PROMCS}}$
49	P23/BUZ	BUZZER output	O	SS-136	BUZZER
50	P30/LCDCL	CAMERA/LINE select output Camera mode is selected with "H", VTR is selected with "L"	O	VA-68	CAM/$\overline{\text{LINE}}$
51	P31/SYNC	Not used	O	VA-68	V MUTE
52	P32		O	VA-68	A MUTE
53	P33	Chip select to serial/parallel IC	O	VA-68	SP CS
54	VDD	VE 3V/5V power source terminal		FU-101	VDD
55	XT1	Sub system clock 32 kHz oscillation terminal	I	FU-101	XT1
56	XT2		I	FU-101	XT2
57	NC			–	NC
58	X1	Main system clock 4.19 MHz oscillation terminal	I	FU-101	X1
59	X2		I	FU-101	X2
60	P60/KK0	KEY matrix input terminal 18 msec period normally "H" Input-Output is possible by bit Pull-up from software is possible by 4-bit	I	all	K IN 0
61	P61/KR1		I	all	K IN 1
62	P62/KR2		I	all	K IN 2
63	P63/KR3		I	all	K IN 3

Pin No.	Port Name	Function	I/O	Connection	Signal Name
64	P70/KR4	KEY matrix input terminal 18 msec period normally "H" 4-bit input-Output port Pull-up from software is possible by 4-bit	I	all	K IN 4
65	P71/KR5		I	all	K IN 5
66	P72/KR6		I	all	K IN 6
67	P73/KR7		I	all	K IN 7
68	$\overline{\mathrm{RESET}}$	System reset input Reset input terminal of microcomputer	I	all	$\overline{\mathrm{RESET}}$
69	S0	Segment signal output terminal not used	O		
70	S1		O	LCD	
71	S2		O	LCD	
72	S3		O	LCD	
73	S4		O	LCD	
74	S5		O	LCD	
75	S6	LCD segment signal output terminal (Four value output of 0, 1.7, 3.3, 5V)	O	LCD	
76	S7		O	LCD	
77	S8		O	LCD	
78	S9		O	LCD	
79	S10		O	LCD	
80	S11		O	LCD	

3-12. SERVO, SYSTEM CONTROL SYSTEM TERMINAL FUNCTION SS-136 BOARD IC501 (CXP80116)

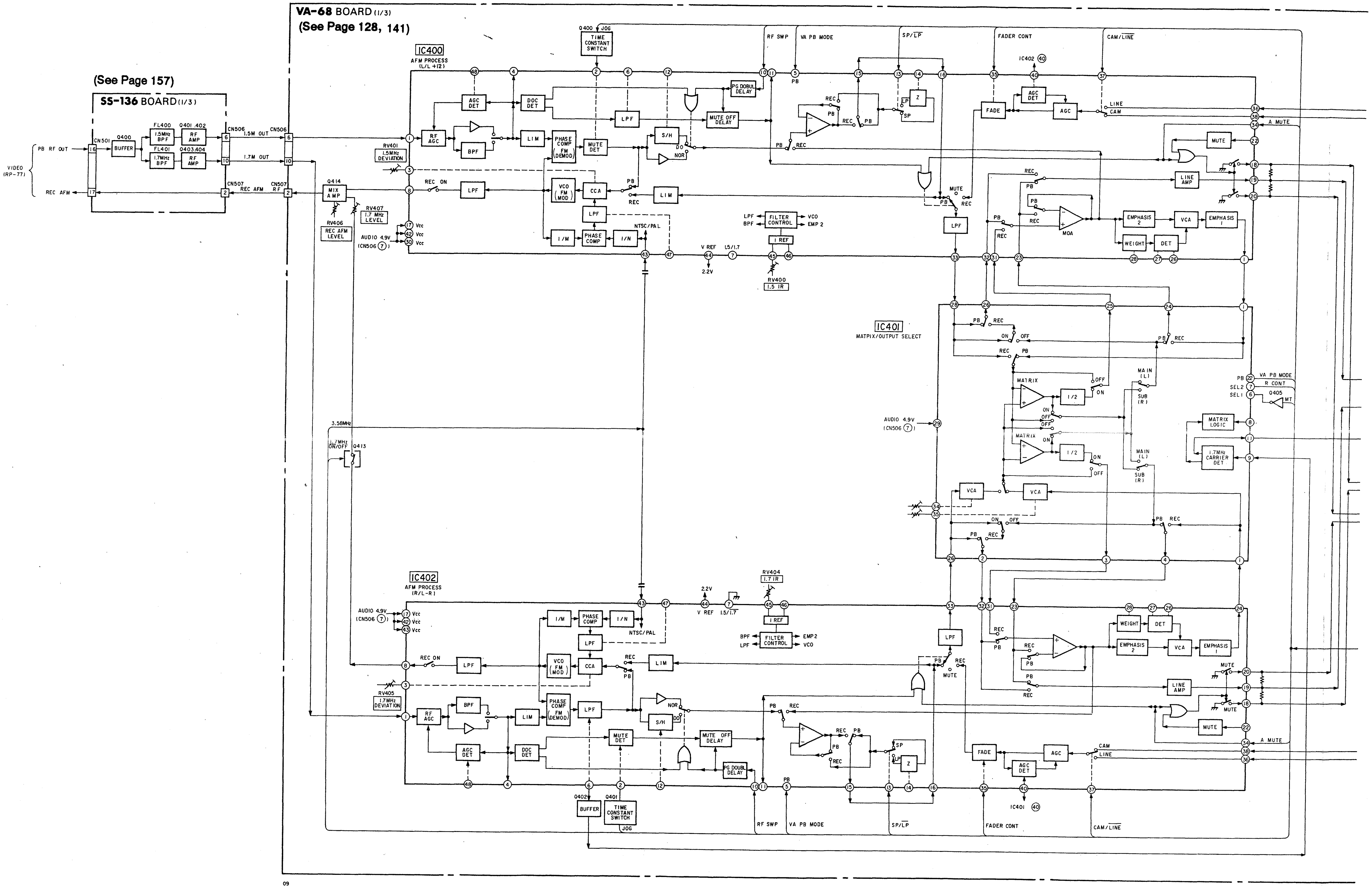
<table>
<tr><th>Pin No.</th><th>Signal Name</th><th>I/O</th><th>Function</th><th>Connection</th></tr>
<tr><td>1</td><td>SEL2</td><td>O</td><td rowspan="2">ATF REF PILOT signal frequency control
<table><tr><td>ATF REF PILOT</td><td>f1</td><td>f2</td><td>f3</td><td>f4</td></tr><tr><td>SEL 1</td><td>H</td><td>L</td><td>H</td><td>L</td></tr><tr><td>SEL 2</td><td>H</td><td>H</td><td>L</td><td>L</td></tr></table></td><td rowspan="2">ATF IC
CXA1204Q</td></tr>
<tr><td>2</td><td>SEL1</td><td>O</td></tr>
<tr><td>3</td><td>DS ON</td><td>O</td><td>Data Screen ON/OFF control
Data Screen ON and Data Screen key are selected with "H"</td><td>VIDEO block</td></tr>
<tr><td>4</td><td>VI SWP</td><td>O</td><td>RF SWP using for Video system
Normally, same as RF SWP
When using 'CH only "H" 3 Head is used</td><td>VIDEO block</td></tr>
<tr><td>5</td><td>DRM ACC</td><td>O</td><td>DRUM motor acceleration signal
Acceleration is selected with "H"</td><td>To Drum motor driver
CXA8006M</td></tr>
<tr><td>6</td><td>DRM BLK</td><td>O</td><td>DRUM motor brake signal
Brake is selected with "H"</td><td>To Drum motor driver
CXA8006M</td></tr>
<tr><td>7</td><td>JOG</td><td>O</td><td>Normal/JOG mode recognition signal
JOG is selected with "H"</td><td>R/P Amp
VIDEO block</td></tr>
<tr><td>8</td><td>FE RA</td><td>–</td><td rowspan="2">Not used</td><td rowspan="2">——</td></tr>
<tr><td>9</td><td>FE RS</td><td>–</td></tr>
<tr><td>10</td><td>H CHG</td><td>O</td><td>2CH or 'CH select signal
'CH is selected with "H"
Only 3 Head is used</td><td>VIDEO system
R/P Amp</td></tr>
<tr><td>11</td><td>SYSTEM SYNC</td><td>O</td><td>Internal bus communication synchronizing signal (V syncronization)</td><td>Mode controller</td></tr>
<tr><td>12</td><td>SP/$\overline{\mathrm{LP}}$</td><td>O</td><td>SP/LP mode recognition signal
SP mode is selected with "H"</td><td>R/P Amp
VIDEO/AUDIO block</td></tr>
<tr><td>13</td><td>$\overline{\mathrm{NOR}}$/Hi8</td><td>O</td><td>Not used. Normally, "L"</td><td>——</td></tr>
<tr><td>14</td><td>VA PB MODE</td><td>O</td><td>VIDEO/AUDIO system REC/PB mode select
PB mode is selected with "H"</td><td>VIDEO/AUDIO block</td></tr>
<tr><td>15</td><td>UNLOAD</td><td>O</td><td rowspan="2">Loading motor control signal
<table><tr><td></td><td>OFF</td><td>LOADING</td><td>UNLOADING</td><td>BRAKE</td></tr><tr><td>LOAD</td><td>L</td><td>H</td><td>L</td><td>H</td></tr><tr><td>UNLOAD</td><td>L</td><td>L</td><td>H</td><td>H</td></tr></table></td><td rowspan="2">To loading block</td></tr>
<tr><td>16</td><td>LOAD</td><td>O</td></tr>
<tr><td>17</td><td>CAP ON2</td><td>–</td><td rowspan="2">Not used</td><td rowspan="2">——</td></tr>
<tr><td>18</td><td>AF REC</td><td>–</td></tr>
<tr><td>19</td><td>ME/$\overline{\mathrm{MP}}$</td><td>I</td><td>ME/MP tape recognition input
ME tape is selected with "H"</td><td>To CC-61 board</td></tr>
<tr><td>20</td><td>MP HG</td><td>I</td><td>MP HG tape recognition input
MPHG is selected with "L"</td><td>To CC-61 board</td></tr>
<tr><td>21</td><td>REC PROOF</td><td>I</td><td>REC PROOF recognition input
REC PROOF is selected with "L"</td><td>To CC-61 board</td></tr>
<tr><td>22</td><td>MODE SW2</td><td>I</td><td rowspan="3">Mechanical position input</td><td rowspan="3">To CC-61 board</td></tr>
<tr><td>23</td><td>MODE SW1</td><td>I</td></tr>
<tr><td>24</td><td>MODE SW0</td><td>I</td></tr>
<tr><td>25</td><td>$\overline{\mathrm{CC\ DOWN}}$</td><td>I</td><td>Cassette IN switch input
Cassette IN is selected with "L"</td><td>To CC-61 board</td></tr>
<tr><td>26</td><td>DRM ON</td><td>O</td><td>Drum motor drive control
Motor Drive is selected with "H"</td><td>To Drum motor driver
CXA8006M</td></tr>
</table>

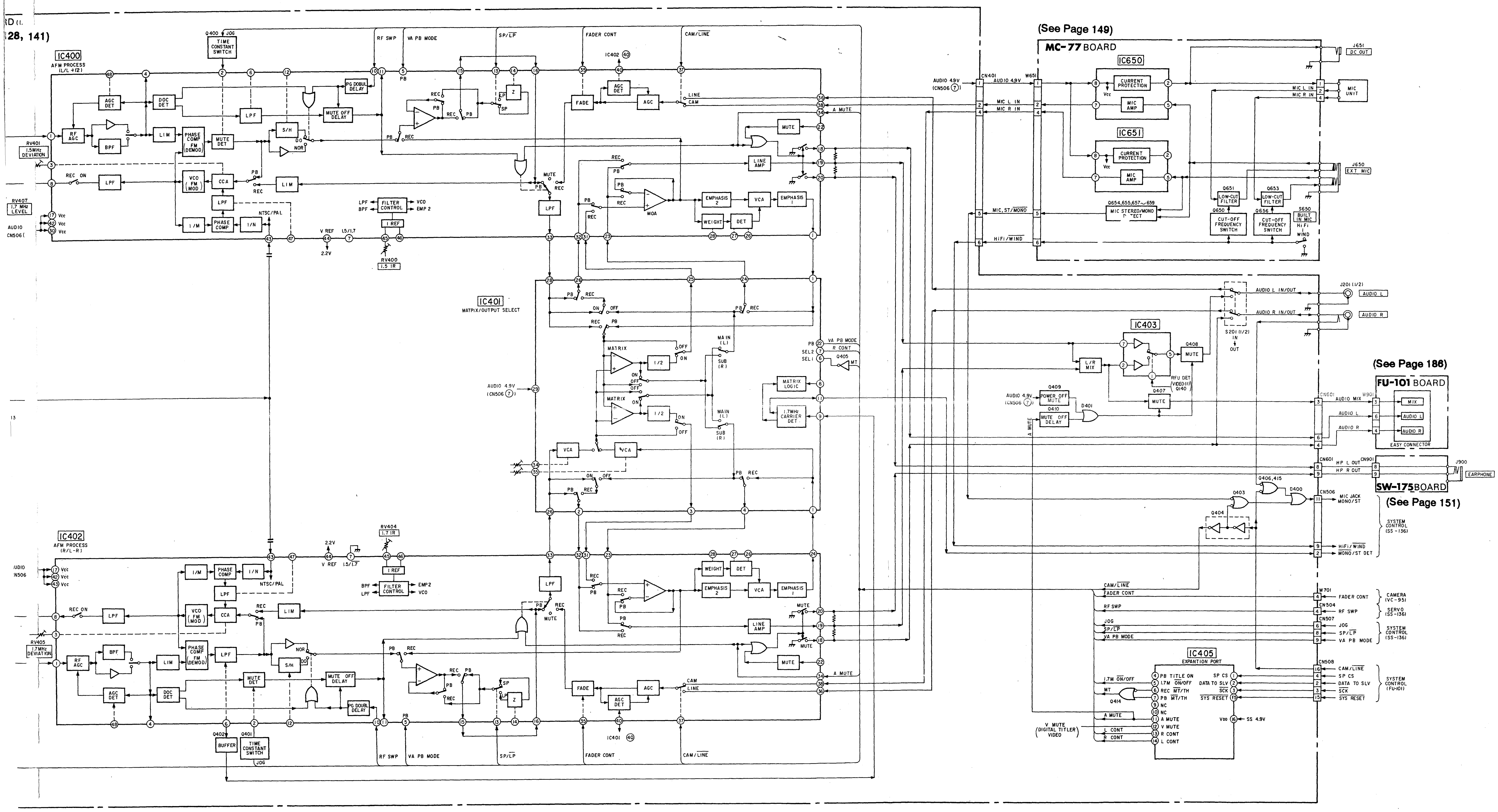
Pin No.	Signal Name	I/O	Function	Connection
27	T/E LED	O	LED for tape top end sensor drive control LED Flashing is selected with "H"	To CC-61 board
28	$\overline{\text{REEL LED}}$	O	LED for reel sensor drive control LED Flashing is selected with "L"	To CC-61 board
29		–	Not used	——
30	$\overline{\text{EDIT}}$	O	EDIT ON/OFF control EDIT is selected with "L" and interlocked with EDIT key	To VIDEO block
31	SS GND	–	——	——
32	$\overline{\text{SYSTEM RESET}}$	I	Control by mode controller with RESET teriminal of this microcomputer RESET is selected "L"	Mode controller and others
33	SS GND	–	——	——
34	16M OUT	O	Crystal connecting terminal for system clock oscillation (16 MHz)	X'tal (X501)
35	16M IN	I		
36	$\overline{\text{COSMO CS}}$	I	Select signal of this microcomputer from internal bus communication mode controller Selected with "L"	Mode controller
37	DATA TO SLVE	I	Serial data input terminal	Mode controller
38	DATA TO MSTR	O	Serial data output terminal	Mode controller
39	$\overline{\text{SCK}}$	I	Serial clock input terminal	Mode controller
40	PCM ACT	–	Not used	——
41	Hi8 DET	–	Not used. Normally, "L"	——
42	S IN	–	Not used. Normally, "H"	——
43	$\overline{\text{MONO}}$/ST DET	I	AFM monaural/stereo recognition input Stereo is selected "H" (Only stereo correspondence model)	To AUDIO block
44	TOP SENS	I	Tape top end sensor input TOP is selected with "H" END is selected with "H"	To CC-61 board
45	END SENS	I		
46	T REEL FG	I	Reel sensor input Take up side	To CC-61 board
47	S REEL FG	I	Reel sensor input Supply side	To CC-61 board
48	BATT SENS	I	Battery input voltage sense	——
49	DEW SENS	I	DEW SENSOR input	DEW SENSOR
50	THERMISTOR	I	THERMISTOR input (This model: fixed valur)	
51	ATF ERROR	I	ATF error (ATF LOCK error) input A/D input teriminal	SS-136 IC506 ⑫
52	SS GND	–	——	——
53	SS 4.9V		Power source supply terminal	
54	SS 4.9V			
55	DRM PG	I	DRUM PG input FRC (high precision timer) capture input terminal	SS-136 IC502 ⑨
56	$\overline{\text{HiFi}}$/WIND	I	MIC HiFi/WIND input. HiFi is selected with "L", WIND is selected with "H"	To AUDIO block
57	CLOG	I	Clog detection signal input. CLOG is selected with "H"	SS-136 Q510 ©
58	COMP SYNC	I	Composite SYNC (composite syncronizing signal) input. (built-in V SYNC separator)	To VIDEO block
59	SP/$\overline{\text{LP}}$ DET	I	SP/LP recognition signal input	SS-136 Q511 ©

Pin No.	Signal Name	I/O	Function	Connection
60	DRM PG	–	——	——
61	DRM FG	I	DRUM FG input terminal FRC capture input terminal	SS-136 IC502 ⑩ Sense Amplifier
62	CAP FG	I	CAPSTAN FG input terminal FRC capture input terminal	SS-136 IC502 ⑫ Sense Amplifier
63	MONO/$\overline{\text{ST}}$	–	Not used	——
64	SYNC DET	I	With/Without VIDEO signal recognition signal input	To VIDEO block
65	CAP D/A	O	DA gate pulse output terminal for CAP ERROR output Servo exclusive output terminal (DA mode)	To capstan lowpass filter
66	DRM D/A	O	DA gate pulse output terminal for DRUM ERROR output Servo exclusive output terminal (DA mode)	To drum lowpass filter
67	CAPPWM	O	PWM output terminal for CAP ERROR output Servo exclusive output terminal (PWM mode)	Capstan driver SS-136 IC503
68	DRM RVS	O	DRUM rotating direction control signal RVS is selected with "H" FWD is selected with "L"	SS-136 IC503 ③
69	CAP FG	I	External event input terminal to CAP FG input terminal exclusive counter for TAPE COUNTER drive	SS-136 IC502 ⑫ Sense Amplifier
70	MIC JACK MONO/$\overline{\text{ST}}$	I	External MIC Monaural/stereo recording signal Monaural is selected with "H".	To AUDIO block
71	SS 4.9V			
72	SS 4.9V			
73	SS GND	–	——	——
74	–	–	Not used	——
75	CAP ON	O	Capstan driver ON control signal	SS-136 IC504 ⑬ Capstan driver
76	CAP FWD/$\overline{\text{REV}}$	O	Capstan rotating direction control signal, FWD is selected with "H", RVS is selected with "L"	SS-136 IC504 ⑳ Capstan driver
77	$\overline{\text{RP PB MODE}}$	O	REC/PB mode select signal of RP amplifier and ATF IC	SS-136 Q516 Ⓑ
78	FE ON	O	Flying erase oscillatio ON/OFF signal Oscillation is selected with "H"	To RP-77 Amp
79	JOG VD	O	Artifical VD output terminal input to VIDEO signal in varying speed playback	To VIDEO block
80	RF SWP	O	RF SWP output terminal	RP block VIDEO/AUDIO block

	Connection
	——
	SS-136 IC502 ⑩ Sense Amplifier
	SS-136 IC502 ⑫ Sense Amplifier
	——
l inp"t	To VIDEO block
R o ut	To capstan lowpass filter
OR utput	To drum lowpass filter
	Capstan driver SS-136 IC503
	SS-136 IC503 ③
ter nal exclusive	SS-136 IC502 ⑫ Sense Amplifier
l	To AUDIO block
	——
	——
	SS-136 IC504 ⑬ Capstan driver
vitl L”	SS-136 IC504 ⑳ Capstan driver
l A IC	SS-136 Q516 Ⓑ
	To RP-77 Amp
gnal in varying speed	To VIDEO block
	RP block VIDEO/AUDIO block

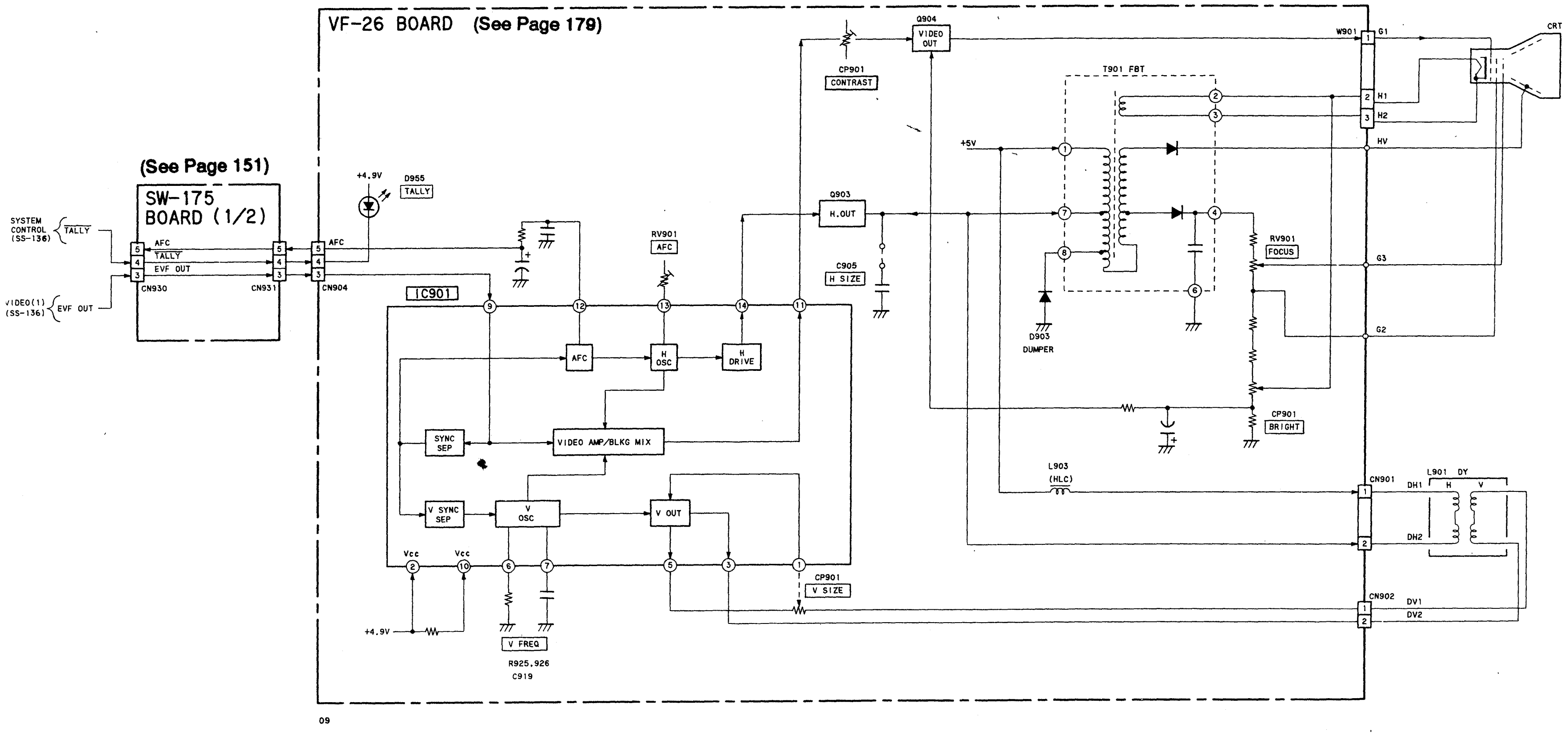
3-13. AUDIO BLOCK DIAGRAM

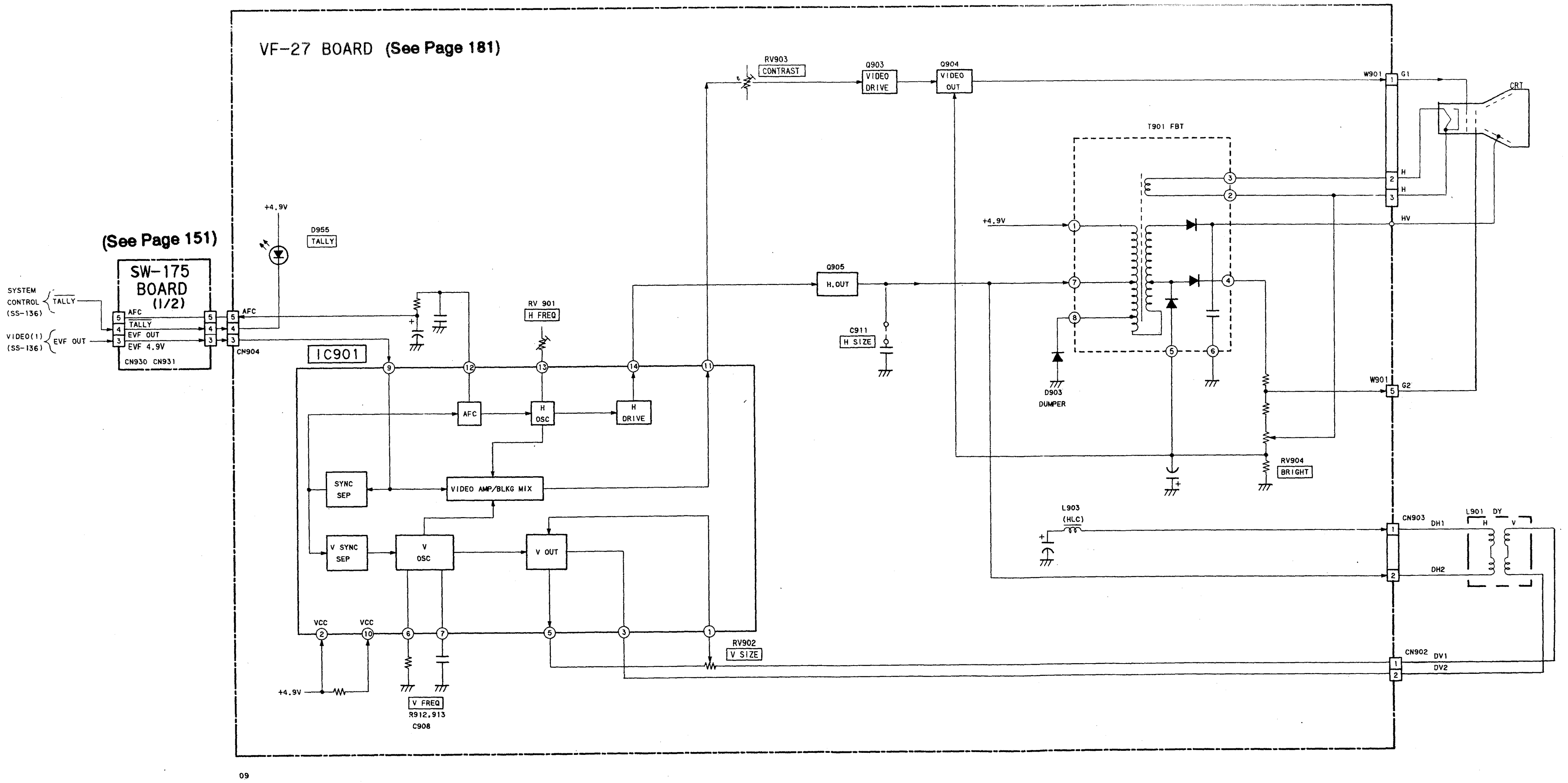

(See Page 157)
SS-136 BOARD (1/3)
VIDEO (RP-77)
PB RF OUT
REC AFM
CN501
Q400
BUFFER
FL400 1.5MHz BPF
FL401 1.7MHz BPF
Q401 .402 RF AMP
Q403.404 RF AMP
CN506
1.5M OUT
1.7M OUT
CN507
REC AFM
RF
VA-68 BOARD (1/3)
(See Page 128, 141)
Q414 MIX AMP
RV406 REC AFM LEVEL
RV407 1.7 MHz LEVEL
RV401 1.5MHz DEVIATION
AUDIO 4.9V (CN506 ⑦)
Vcc
IC400
AFM PROCESS (L/L +12)
Q400 JOG
TIME CONSTANT SWITCH
RF AGC
AGC DET
BPF
DOC DET
LIM
PHASE COMP (FM DEMOD)
MUTE DET
LPF
S/H
DO
NOR
PG DOBUL DELAY
MUTE OFF DELAY
REC ON
VCO (FM MOD)
CCA
I/M
PHASE COMP
I/N
NTSC/PAL
PB
REC
V REF
2.2V
1.5/1.7
FILTER CONTROL
LPF
BPF
VCO
EMP 2
I REF
RV400 1.5 IR
RF SWP
VA PB MODE
SP/LP
Z
FADER CONT
IC402 ㊵
AGC DET
AGC
FADE
CAM/LINE
LINE
CAM
A MUTE
MUTE
LINE AMP
MOA
EMPHASIS 2
VCA
EMPHASIS 1
WEIGHT
DET
IC401
MATPIX/OUTPUT SELECT
ON
OFF
MATRIX
1/2
MAIN (L)
SUB (R)
PB
SEL 2
SEL 1
VA PB MODE
R CONT
Q405
MT
MATRIX LOGIC
1.7MHz CARRIER DET
3.58MHz
1.7MHz ON/OFF
Q413
IC402
AFM PROCESS (R/L-R)
RV404 1.7 IR
RV405 1.7MHz DEVIATION
Q402 BUFFER
Q401 TIME CONSTANT SWITCH
JOG
PG DOUBL DELAY
IC401 ㊵
09



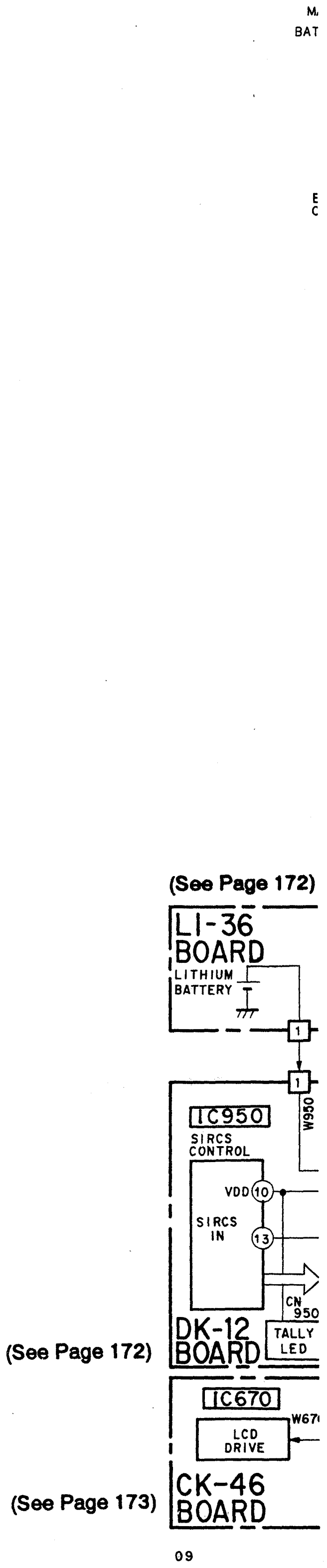
RD (1.
28, 141)
IC400
AFM PROCESS (L/L+(2))
IC401
MATRIX/OUTPUT SELECT
IC402
AFM PROCESS (R/L-R)
IC403
IC405
EXPANTION PORT
(See Page 149)
MC-77 BOARD
IC650
IC651
CURRENT PROTECTION
MIC AMP
LOW-CUT FILTER
CUT-OFF FREQUENCY SWITCH
MIC STEREO/MONO DETECT
BUILT IN MIC
HI FI WIND
J651 DC OUT
MIC UNIT
J650 EXT MIC
J201 (1/2)
AUDIO L
AUDIO R
AUDIO L IN/OUT
AUDIO R IN/OUT
S201 (1/2) IN OUT
(See Page 186)
FU-101 BOARD
MIX
EASY CONNECTOR
AUDIO MIX
HP L OUT
HP R OUT
J900 EARPHONE
SW-175 BOARD
(See Page 151)
MIC JACK MONO/ST
SYSTEM CONTROL (SS-136)
HiFi/WIND
MONO/ST DET
FADER CONT
RF SWP
JOG
SP/LP
VA PB MODE
CAMERA (VC-95)
SERVO (SS-136)
CAM/LINE
SP CS
DATA TO SLV
SCK
SYS RESET
SYSTEM CONTROL (FU-101)
PB TITLE ON
1.7M ON/OFF
REC MT/TH
PB MT/TH
A MUTE
V MUTE
L CONT
R CONT
V MUTE (DIGITAL TITLER) VIDEO
SS 4.9V
AUDIO 4.9V (CN506 ⑦)
POWER OFF MUTE
MUTE OFF DELAY
L/R MIX
MUTE
RFU DET (VIDEO(1)) Q140
TIME CONSTANT SWITCH
BUFFER
RF AGC
AGC DET
DOC DET
BPF
LIM
PHASE COMP FM (DEMOD)
MUTE DET
S/H
NOR
LPF
PG DOUBL DELAY
VCO (FM) (MOD)
CCA
I/M
I/N
PHASE COMP
NTSC/PAL
FILTER CONTROL
I REF
V REF
2.2V
RV400 1.5 IR
RV401 1.5MHz DEVIATION
RV404 1.7 IR
RV405 1.7MHz DEVIATION
RV407 1.7 MHz LEVEL
FADE
AGC
LINE
CAM
LINE AMP
EMPHASIS 2
EMPHASIS 1
VCA
WEIGHT
DET
MOA
MATRIX
1/2
MAIN (L)
SUB (R)
MATRIX LOGIC
1.7MHz CARRIER DET
PB SEL2 SEL1
R CONT
VA PB MODE
REC
PB
ON
OFF

3-14. ELECTRICAL VIEWFINDER BLOCK DIAGRAM

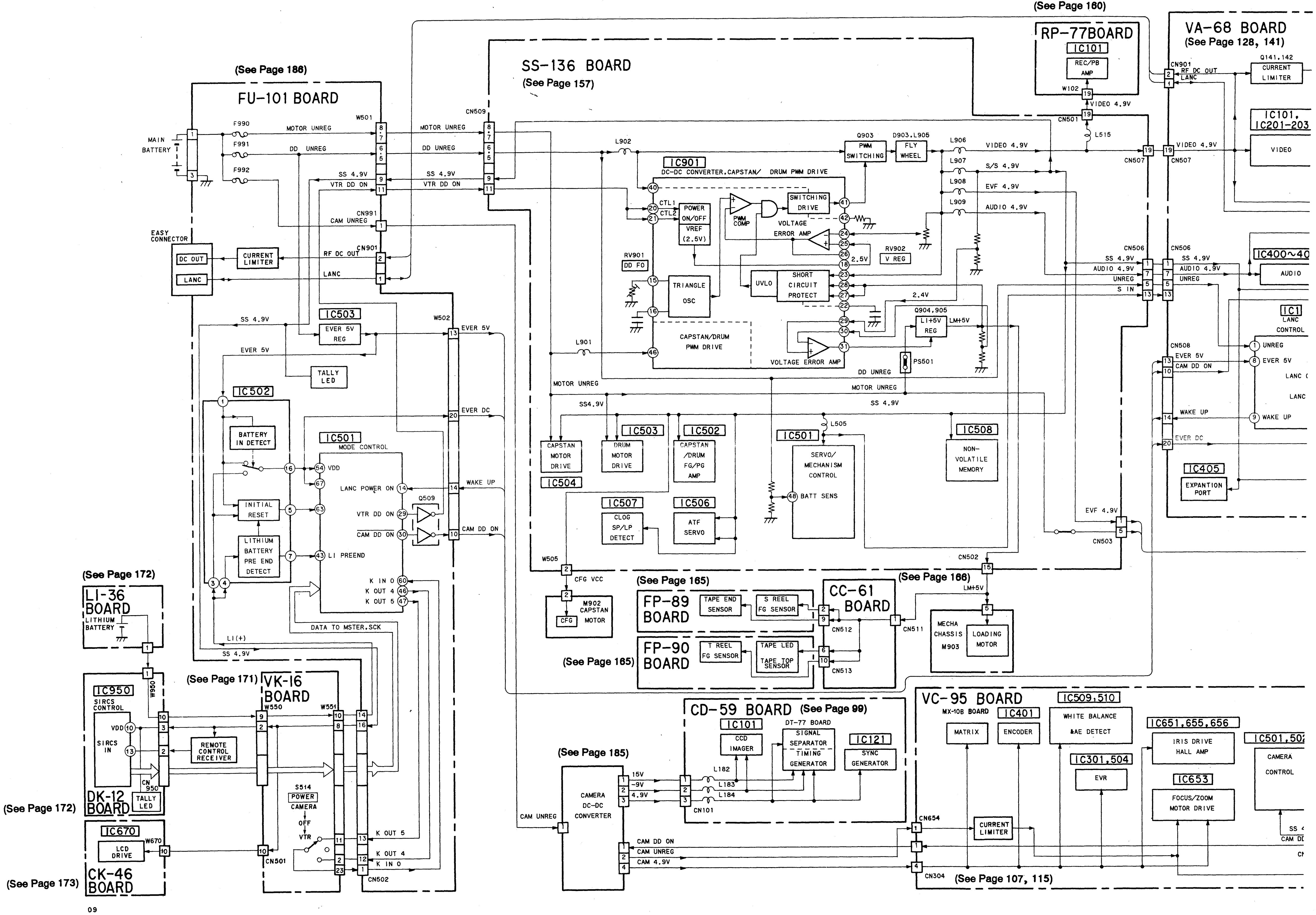

VF-26 BOARD (See Page 179)
(See Page 151)
SW-175 BOARD (1/2)
SYSTEM CONTROL (SS-136)
TALLY
VIDEO(1) (SS-136)
EVF OUT
AFC
TALLY
EVF OUT
CN930
CN931
CN904
+4.9V
D955
TALLY
IC901
SYNC SEP
V SYNC SEP
V OSC
VIDEO AMP/BLKG MIX
AFC
H OSC
H DRIVE
V OUT
RV901
AFC
Vcc
Vcc
+4.9V
V FREQ
R925,926
C919
CP901
V SIZE
CP901
CONTRAST
Q904
VIDEO OUT
Q903
H.OUT
C905
H SIZE
T901 FBT
+5V
D903
DUMPER
RV901
FOCUS
CP901
BRIGHT
L903
(HLC)
W901
G1
H1
H2
HV
G3
G2
CRT
CN901
DH1
DH2
L901 DY
H
V
CN902
DV1
DV2
09

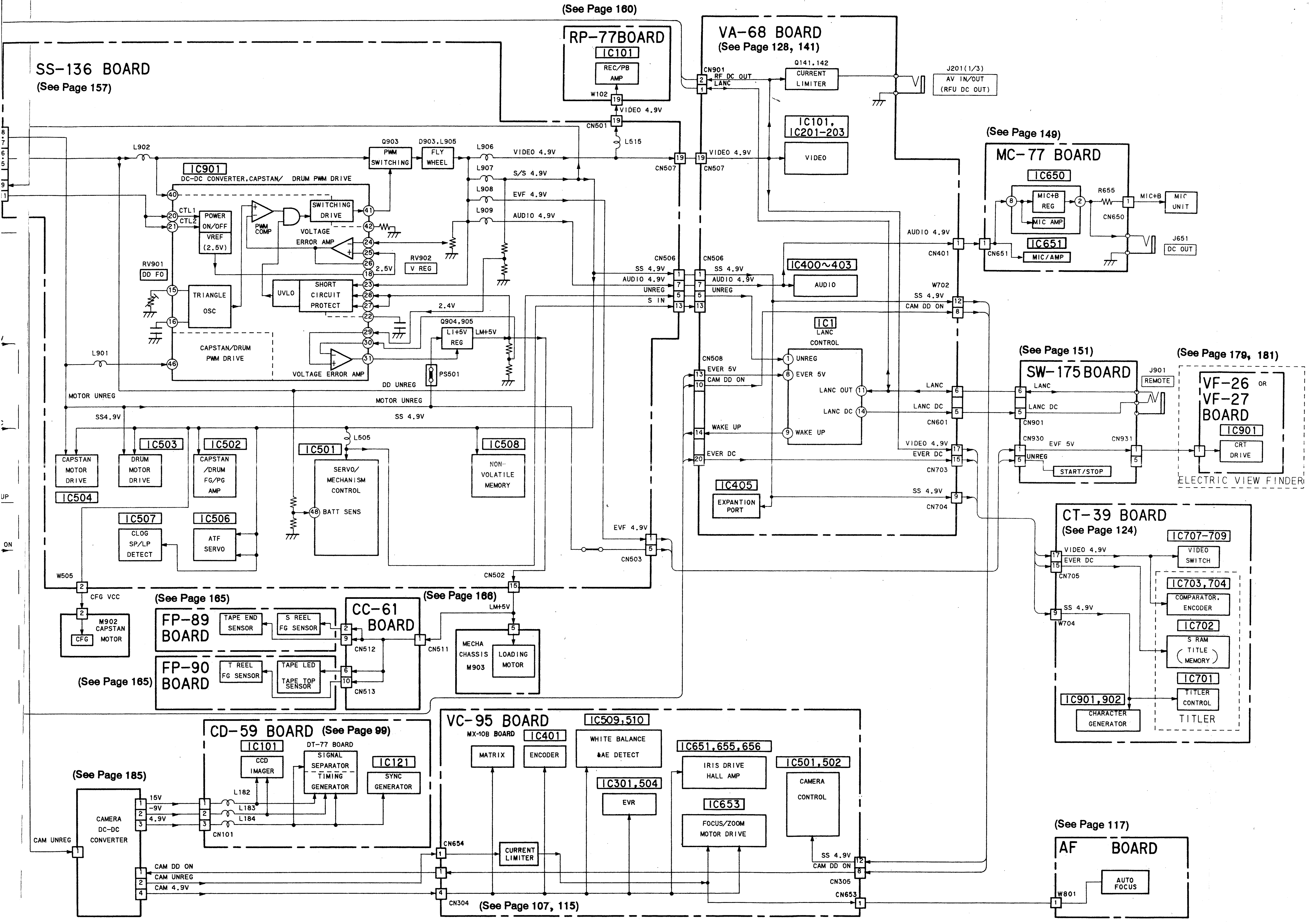

VF-27 BOARD (See Page 181)
(See Page 151)
SW-175 BOARD (1/2)
SYSTEM CONTROL (SS-136)
TALLY
VIDEO(1) (SS-136)
EVF OUT
AFC
TALLY
EVF OUT
EVF 4.9V
CN930 CN931
CN904
+4.9V
D955
TALLY
IC901
SYNC SEP
V SYNC SEP
V OSC
VIDEO AMP/BLKG MIX
AFC
H OSC
H DRIVE
V OUT
RV 901
H FREQ
VCC
VCC
+4.9V
V FREQ
R912,913
C908
RV902
V SIZE
RV903
CONTRAST
Q903
VIDEO DRIVE
Q904
VIDEO OUT
Q905
H.OUT
C911
H SIZE
T901 FBT
+4.9V
D903
DUMPER
RV904
BRIGHT
L903
(HLC)
W901
G1
H
H
HV
W901
G2
CRT
CN903
DH1
DH2
L901 DY
H
V
CN902
DV1
DV2
09

3-15. POWER BLOCK DIAGR


M.
BAT
E
C
(See Page 172)
LI-36 BOARD
LITHIUM BATTERY
IC950
SIRCS CONTROL
VDD
SIRCS IN
W950
CN 950
TALLY LED
(See Page 172)
DK-12 BOARD
IC670
LCD DRIVE
W67
(See Page 173)
CK-46 BOARD
09

3-15. POWER BLOCK DIAGRAM

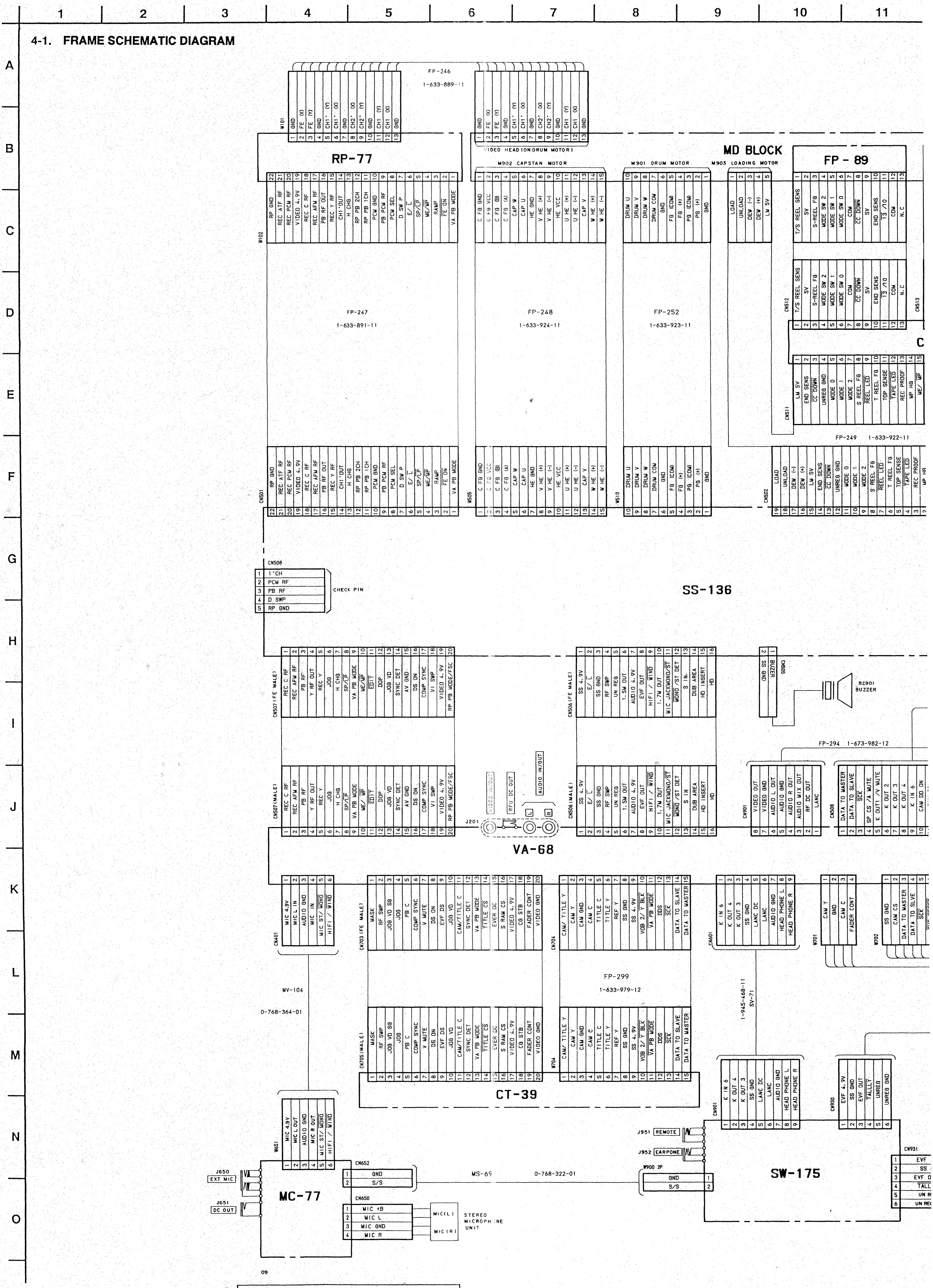

(See Page 188)
FU-101 BOARD
MAIN BATTERY
F990
F991
F992
MOTOR UNREG
DD UNREG
SS 4.9V
VTR DD ON
W501
CN991
CAM UNREG
EASY CONNECTOR
DC OUT
LANC
CURRENT LIMITER
CN901
RF DC OUT
IC503
EVER 5V REG
TALLY LED
EVER 5V
IC502
BATTERY IN DETECT
INITIAL RESET
LITHIUM BATTERY PRE END DETECT
IC501
MODE CONTROL
VDD
LANC POWER ON
VTR DD ON
CAM DD ON
LI PREEND
K IN 0
K OUT 4
K OUT 5
Q509
DATA TO MSTER.SCK
LI(+)
W502
EVER DC
WAKE UP
(See Page 172)
LI-36 BOARD
LITHIUM BATTERY
IC950
SIRCS CONTROL
SIRCS IN
W950
CN950
REMOTE CONTROL RECEIVER
TALLY LED
DK-12 BOARD
(See Page 172)
IC670
LCD DRIVE
W670
CK-46 BOARD
(See Page 173)
(See Page 171)
VK-16 BOARD
W550
W551
S514
POWER
CAMERA
OFF
VTR
CN501
CN502
09
SS-136 BOARD
(See Page 157)
CN509
L902
L901
IC901
DC-DC CONVERTER,CAPSTAN/ DRUM PWM DRIVE
CTL1
CTL2
POWER ON/OFF
VREF (2.5V)
PWM COMP
SWITCHING DRIVE
VOLTAGE ERROR AMP
RV901
DD FO
RV902
V REG
TRIANGLE OSC
UVLO
SHORT CIRCUIT PROTECT
CAPSTAN/DRUM PWM DRIVE
VOLTAGE ERROR AMP
2.5V
2.4V
Q903
PWM SWITCHING
D903,L905
FLY WHEEL
L906
L907
L908
L909
VIDEO 4.9V
S/S 4.9V
EVF 4.9V
AUDIO 4.9V
Q904,905
LI+5V REG
LM+5V
PS501
DD UNREG
MOTOR UNREG
SS4.9V
IC504
CAPSTAN MOTOR DRIVE
IC503
DRUM MOTOR DRIVE
IC502
CAPSTAN /DRUM FG/PG AMP
IC501
L505
SERVO/ MECHANISM CONTROL
BATT SENS
IC508
NON-VOLATILE MEMORY
IC507
CLOG SP/LP DETECT
IC506
ATF SERVO
W505
CFG VCC
M902 CAPSTAN MOTOR
CFG
CN502
CN503
CN506
CN507
(See Page 160)
RP-77BOARD
IC101
REC/PB AMP
W102
CN501
L515
VA-68 BOARD
(See Page 128, 141)
CN901
RF DC OUT
LANC
Q141,142
CURRENT LIMITER
IC101, IC201-203
VIDEO
IC400~40
AUDIO
UNREG
S IN
IC1
LANC CONTROL
CN508
EVER 5V
CAM DD ON
WAKE UP
EVER DC
IC405
EXPANTION PORT
(See Page 165)
FP-89 BOARD
TAPE END SENSOR
S REEL FG SENSOR
FP-90 BOARD
(See Page 165)
T REEL FG SENSOR
TAPE LED
TAPE TOP SENSOR
CC-61 BOARD
CN511
CN512
CN513
(See Page 186)
MECHA CHASSIS M903
LOADING MOTOR
CD-59 BOARD (See Page 99)
IC101
CCD IMAGER
DT-77 BOARD
SIGNAL SEPARATOR
TIMING GENERATOR
IC121
SYNC GENERATOR
L182
L183
L184
CN101
15V
-9V
4.9V
(See Page 185)
CAMERA DC-DC CONVERTER
CAM UNREG
CAM DD ON
CAM 4.9V
VC-95 BOARD
MX-108 BOARD
MATRIX
IC401
ENCODER
IC509,510
WHITE BALANCE &AE DETECT
IC301,504
EVR
IC651,655,656
IRIS DRIVE HALL AMP
IC653
FOCUS/ZOOM MOTOR DRIVE
IC501,50
CAMERA CONTROL
CN654
CURRENT LIMITER
CN304
(See Page 107, 115)


(See Page 160)
RP-77BOARD
IC101
REC/PB AMP
W102
VIDEO 4.9V
CN501
L515
VA-68 BOARD
(See Page 128, 141)
CN901
RF DC OUT
LANC
Q141,142
CURRENT LIMITER
J201(1/3)
AV IN/OUT
(RFU DC OUT)
IC101,
IC201-203
VIDEO
SS-136 BOARD
(See Page 157)
L902
IC901
DC-DC CONVERTER.CAPSTAN/ DRUM PWM DRIVE
Q903
PWM SWITCHING
D903,L905
FLY WHEEL
L906
VIDEO 4.9V
L907
S/S 4.9V
L908
EVF 4.9V
L909
AUDIO 4.9V
CN507
CTL1
CTL2
POWER ON/OFF
VREF (2.5V)
PWM COMP
SWITCHING DRIVE
VOLTAGE ERROR AMP
RV902
V REG
2.5V
RV901
DD FO
TRIANGLE OSC
UVLO
SHORT CIRCUIT PROTECT
2.4V
Q904,905
LI+5V REG
LM+5V
CAPSTAN/DRUM PWM DRIVE
VOLTAGE ERROR AMP
PS501
L901
DD UNREG
MOTOR UNREG
SS4.9V
SS 4.9V
CN506
SS 4.9V
AUDIO 4.9V
UNREG
S IN
IC400~403
AUDIO
W702
CAM DD ON
IC1
LANC CONTROL
UNREG
EVER 5V
LANC OUT
LANC DC
WAKE UP
CN508
EVER 5V
CAM DD ON
WAKE UP
EVER DC
CN601
VIDEO 4.9V
CN703
CN704
IC405
EXPANTION PORT
(See Page 149)
MC-77 BOARD
IC650
MIC+B REG
MIC AMP
R655
MIC+B
MIC UNIT
CN650
IC651
MIC/AMP
CN651
CN401
J651
DC OUT
(See Page 151)
SW-175 BOARD
J901
REMOTE
LANC
LANC DC
CN901
CN930
EVF 5V
CN931
UNREG
START/STOP
(See Page 179, 181)
VF-26 OR VF-27 BOARD
IC901
CRT DRIVE
ELECTRIC VIEW FINDER
CAPSTAN MOTOR DRIVE
IC504
IC503
DRUM MOTOR DRIVE
IC502
CAPSTAN /DRUM FG/PG AMP
IC501
L505
SERVO/ MECHANISM CONTROL
BATT SENS
IC508
NON-VOLATILE MEMORY
IC507
CLOG SP/LP DETECT
IC506
ATF SERVO
EVF 4.9V
CN503
W505
CFG VCC
M902 CAPSTAN MOTOR
CFG
CN502
(See Page 165)
FP-89 BOARD
TAPE END SENSOR
S REEL FG SENSOR
FP-90 BOARD
T REEL FG SENSOR
TAPE LED
TAPE TOP SENSOR
(See Page 165)
CC-61 BOARD
CN512
CN513
CN511
(See Page 186)
LM+5V
MECHA CHASSIS M903
LOADING MOTOR
CT-39 BOARD
(See Page 124)
VIDEO 4.9V
EVER DC
CN705
W704
SS 4.9V
IC707-709
VIDEO SWITCH
IC703,704
COMPARATOR. ENCODER
IC702
S RAM (TITLE MEMORY)
IC701
TITLER CONTROL
IC901,902
CHARACTER GENERATOR
TITLER
(See Page 185)
CAMERA DC-DC CONVERTER
CAM UNREG
15V
-9V
4.9V
CD-59 BOARD (See Page 99)
IC101
CCD IMAGER
DT-77 BOARD
SIGNAL SEPARATOR
TIMING GENERATOR
IC121
SYNC GENERATOR
L182
L183
L184
CN101
CAM DD ON
CAM UNREG
CAM 4.9V
VC-95 BOARD
MX-10B BOARD
MATRIX
IC401
ENCODER
IC509,510
WHITE BALANCE &AE DETECT
IC301,504
EVR
IC651,655,656
IRIS DRIVE HALL AMP
IC653
FOCUS/ZOOM MOTOR DRIVE
IC501,502
CAMERA CONTROL
CN654
CURRENT LIMITER
SS 4.9V
CAM DD ON
CN305
CN653
CN304
(See Page 107, 115)
(See Page 117)
AF BOARD
AUTO FOCUS
W801
UP
ON

SECTION 4

PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM



1
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3
4
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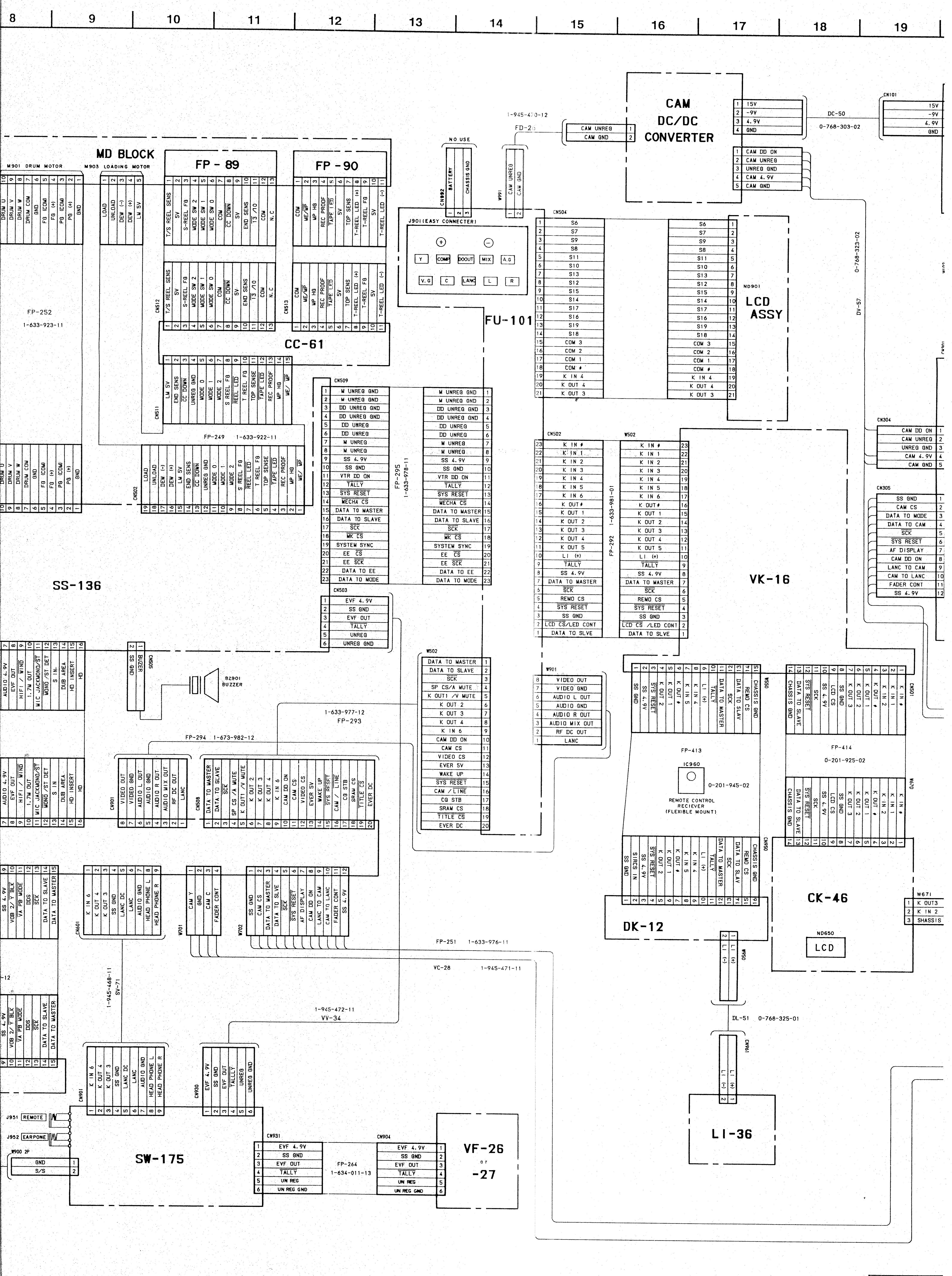
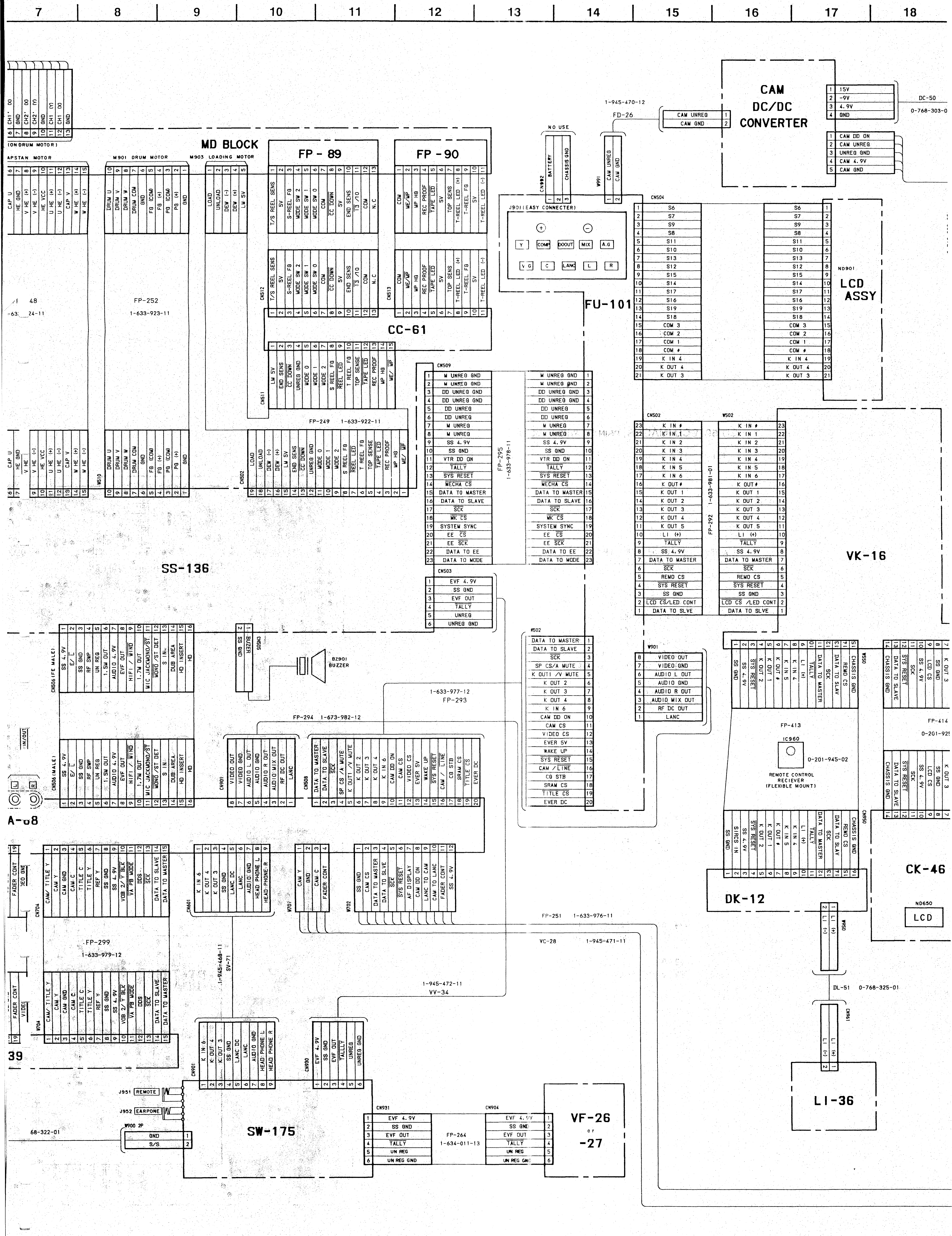
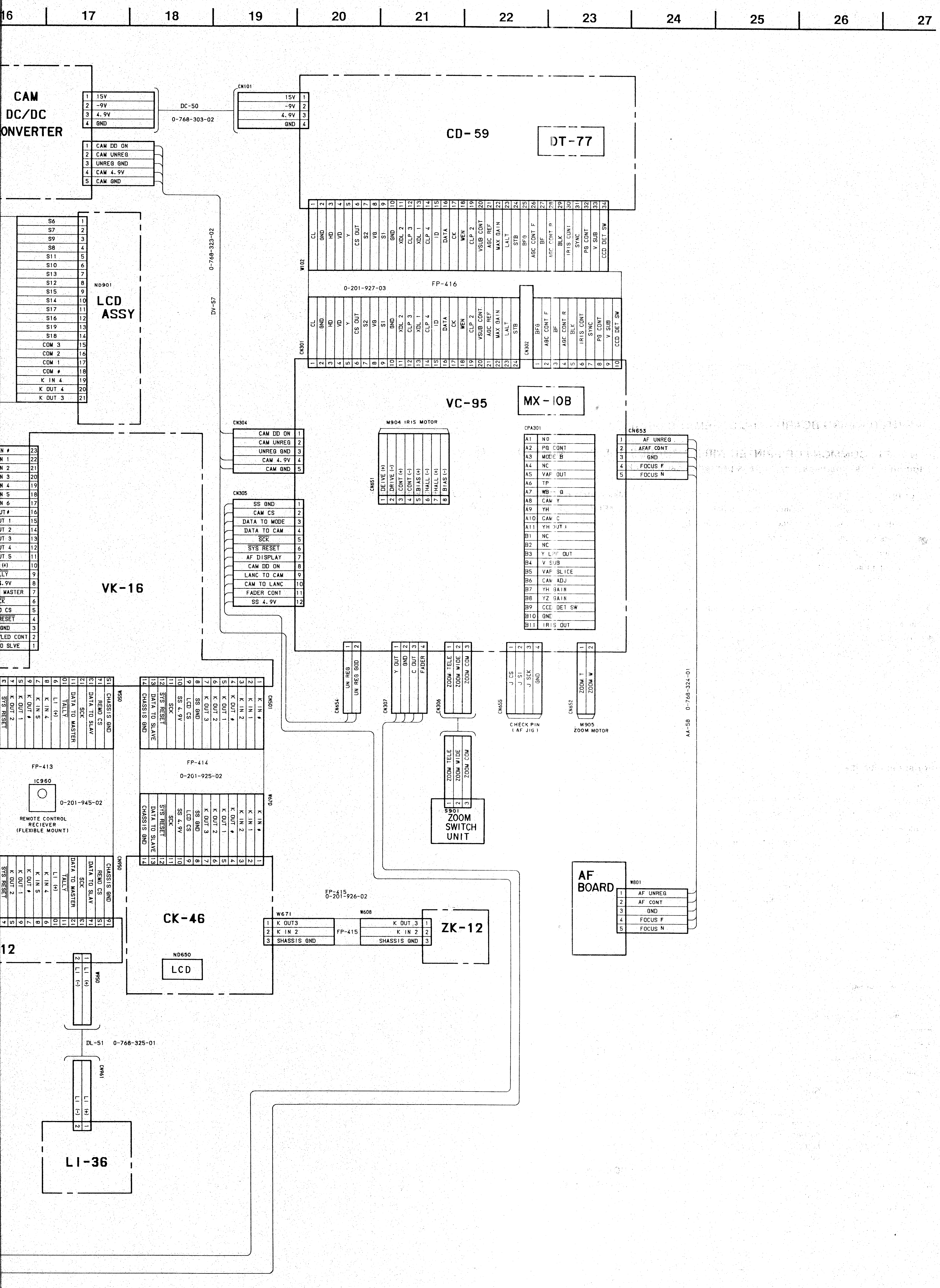
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
FP-246
1-633-889-11
VIDEO HEAD (ON DRUM MOTOR)
RP-77
W101
W102
M902 CAPSTAN MOTOR
M901 DRUM MOTOR
M903 LOADING MOTOR
MD BLOCK
FP-89
FP-247
1-633-891-11
FP-248
1-633-924-11
FP-252
1-633-923-11
FP-249 1-633-922-11
CN511
CN512
CN513
CN501
W505
W510
CN502
CN508
CHECK PIN
SS-136
CN507 (FE MALE)
CN506 (FE MALE)
CN505
BZ901 BUZZER
FP-294 1-673-982-12
CN507 (MALE)
CN506 (MALE)
J201
VIDEO IN/OUT
RFU DC OUT
AUDIO IN/OUT
VA-68
CN901
CN508
CN401
CN703 (FE MALE)
CN704
CN601
W701
W702
MV-104
0-768-364-01
FP-299
1-633-979-12
1-945-468-11
SV-71
CN705 (MALE)
W704
CT-39
CN901
CN930
CN931
W651
J650 EXT MIC
J651 DC OUT
MC-77
CN652
CN650
MS-69
0-768-322-01
W900 2P
J951 REMOTE
J952 EARPONE
SW-175
MIC (L)
MIC (R)
STEREO MICROPHONE UNIT
09

FRAME **FRAME**


8
9
10
11
12
13
14
15
16
17
18
19
MD BLOCK
M901 DRUM MOTOR
M903 LOADING MOTOR
FP-89
FP-90
FP-252
1-633-923-11
CC-61
CN511
CN512
CN513
CN502
FP-249 1-633-922-11
SS-136
NO USE
CN992
BATTERY
CHASSIS GND
W991
CAM UNREG
CAM GND
1-945-420-12
FD-26
J901(EASY CONNECTER)
Y
COMP
DOOUT
MIX
A.G
V.G
C
LANC
L
R
FU-101
CN509
FP-295
1-633-978-11
CN503
CN504
CN502
W502
FP-292
1-633-981-01
CAM DC/DC CONVERTER
DC-50
0-768-303-02
CN101
15V
-9V
4.9V
GND
CAM DD ON
CAM UNREG
UNREG GND
CAM 4.9V
CAM GND
ND901
LCD ASSY
0-768-323-02
DV-57
CN304
CN305
VK-16
CN505
BUZZER
BZ901
BUZZER
1-633-977-12
FP-293
FP-294 1-673-982-12
CN901
CN508
W901
W502
W950
CN501
FP-413
IC960
0-201-945-02
REMOTE CONTROL RECIEVER (FLEXIBLE MOUNT)
FP-414
0-201-925-02
W670
CN950
DK-12
CK-46
ND650
LCD
W671
K OUT3
K IN 2
SHASSIS
CN601
W701
W702
FP-251 1-633-976-11
VC-28 1-945-471-11
1-945-468-11
SV-71
1-945-472-11
VV-34
W950
DL-51 0-768-325-01
CN961
LI (+)
LI (-)
LI-36
CN901
CN930
J951 REMOTE
J952 EARPONE
W900 2P
GND
S/S
SW-175
CN931
CN904
EVF 4.9V
SS GND
EVF OUT
TALLY
UN REG
UN REG GND
FP-264
1-634-011-13
VF-26
or
-27
FRAM


7
8
9
10
11
12
13
14
15
16
17
18
CH1' (X)
GND
CH2' (Y)
GND
CH1 (Y)
CH1 (X)
GND
(ON DRUM MOTOR)
APSTAN MOTOR
M901 DRUM MOTOR
M903 LOADING MOTOR
MD BLOCK
FP - 89
FP - 90
CAP U
HE GND
V HE (-)
V HE (+)
HE VCC
U HE (+)
U HE (-)
CAP V
W HE (+)
W HE (-)
DRUM U
DRUM V
DRUM W
DRUM COM
GND
FG (COM)
FG (+)
PG (COM)
PG (+)
LOAD
UNLOAD
DEW (-)
DEW (+)
LM 5V
T/S REEL SENS
S-REEL FG
MODE SW 2
MODE SW 1
MODE SW 0
COM
CC DOWN
END SENS
13 /10
N.C
ME/MP
MP HG
REC PROOF
TAPE LED
TOP SENS
T-REEL LED (+)
T-REEL FG
T-REEL LED (-)
CN512
CN513
CC-61
CN511
FP-252
1-633-923-11
48
FP-249 1-633-922-11
CN502
W510
NO USE
CN992
BATTERY
CHASSIS GND
W991
CAM UNREG
CAM GND
1-945-470-12
FD-26
CAM DC/DC CONVERTER
15V
-9V
4.9V
GND
DC-50
0-768-303-0
CAM DD ON
CAM UNREG
UNREG GND
CAM 4.9V
CAM GND
J901 (EASY CONNECTER)
Y
COMP
DOOUT
MIX
A.G
VG
C
LANC
L
R
FU-101
CN504
S6
S7
S9
S8
S11
S10
S13
S12
S15
S14
S17
S16
S19
S18
COM 3
COM 2
COM 1
COM 0
K IN 4
K OUT 4
K OUT 3
ND901
LCD ASSY
CN509
M UNREG GND
DD UNREG GND
DD UNREG
M UNREG
SS 4.9V
SS GND
VTR DD ON
TALLY
SYS RESET
MECHA CS
DATA TO MASTER
DATA TO SLAVE
SCK
MK CS
SYSTEM SYNC
EE CS
EE SCK
DATA TO EE
DATA TO MODE
FP-295
1-633-978-11
CN503
EVF 4.9V
EVF OUT
UNREG
UNREG GND
CN502
W502
K IN 0
K IN 1
K IN 2
K IN 3
K IN 5
K IN 6
K OUT 0
K OUT 1
K OUT 2
K OUT 5
LI (+)
REMO CS
LCD CS/LED CONT
DATA TO SLVE
FP-292
1-633-981-01
VK-16
SS-136
CN505
SS GND
BUZZER
BZ901 BUZZER
CN506 (FE MALE)
CN506 (MALE)
E/ L
RF SWP
UN REG
1.5W OUT
AUDIO 4.9V
EVF OUT
HIFI / WIND
1.7W OUT
MIC JACK(MONO/ST)
MONO /ST DET
S IN
DUB AREA
HD INSERT
HD
W502
SP CS/A MUTE
K OUT1 /V MUTE
CAM DD ON
CAM CS
VIDEO CS
EVER 5V
WAKE UP
CAM / LINE
CG STB
SRAM CS
TITLE CS
EVER DC
W901
VIDEO OUT
VIDEO GND
AUDIO L OUT
AUDIO GND
AUDIO R OUT
AUDIO MIX OUT
RF DC OUT
LANC
1-633-977-12
FP-293
FP-294 1-673-982-12
CN901
CN508
W950
CHASSIS GND
FP-414
0-201-92
FP-413
IC960
0-201-945-02
REMOTE CONTROL RECIEVER (FLEXIBLE MOUNT)
CN950
S/RCS IN
CK-46
DK-12
ND650
LCD
A-68
IN/OUT
L
R
CN704
W704
FADER CONT
VIDEO GND
CAM/ TITLE Y
CAM Y
CAM GND
CAM C
TITLE C
TITLE Y
REF Y
VGB 2/ Y BLK
VA PB MODE
ODS
FP-299
1-633-979-12
CN601
K IN 6
LANC DC
HEAD PHONE L
HEAD PHONE R
W701
CAM C
FADER CONT
W702
AF DISPLAY
LANC TO CAM
CAM TO LANC
FP-251 1-633-976-11
VC-28 1-945-471-11
1-945-468-11
SV-71
1-945-472-11
VV-34
DL-51 0-768-325-01
CN961
LI (-)
LI (+)
LI-36
39
CN930
CN901
J951 REMOTE
J952 EARPONE
W900 2P
68-322-01
GND
S/S
SW-175
CN931
CN904
EVF 4.9V
EVF OUT
UN REG
UN REG GND
FP-264
1-634-011-13
VF-26 or -27


16
17
18
19
20
21
22
23
24
25
26
27
CAM DC/DC CONVERTER
15V
-9V
4.9V
GND
CAM DD ON
CAM UNREG
UNREG GND
CAM 4.9V
CAM GND
DC-50
0-768-303-02
CN101
CD-59
DT-77
CL
GND
HD
VD
Y
CS OUT
S2
VB
S1
XDL 2
CLP 3
XDL 1
CLP 4
ID
DATA
CK
WEN
CLP 2
VSUB CONT
AGC REF
MAX GAIN
LALT
STB
BFG
AGC CONT F
BF
AGC CONT R
BLK
IRIS CONT
SYNC
PG CONT
V SUB
CCD DET SW
W102
FP-416
0-201-927-03
CN301
CN302
0-768-323-02
DV-57
LCD ASSY
ND901
S6
S7
S9
S8
S11
S10
S13
S12
S15
S14
S17
S16
S19
S18
COM 3
COM 2
COM 1
COM 0
K IN 4
K OUT 4
K OUT 3
VC-95
MX-10B
CN304
CN305
SS GND
CAM CS
DATA TO MODE
DATA TO CAM
SCK
SYS RESET
AF DISPLAY
CAM DD ON
LANC TO CAM
CAM TO LANC
FADER CONT
SS 4.9V
M904 IRIS MOTOR
CN651
DRIVE (+)
DRIVE (-)
CONT (+)
CONT (-)
BIAS (+)
HALL (-)
HALL (+)
BIAS (-)
CPA301
NO
PG CONT
MODE B
NC
VAF OUT
TP
WB - G
CAM Y
YH
CAM C
YH OUT I
Y LPF OUT
V SUB
VAF SLICE
CAM ADJ
YH GAIN
YZ GAIN
CCD DET SW
GND
IRIS OUT
CN653
AF UNREG
AFAF CONT
FOCUS F
FOCUS N
VK-16
CN654
UN REG
UN REG GND
CN307
Y OUT
C OUT
FADER
CN306
ZOOM TELE
ZOOM WIDE
ZOOM COM
CN655
J CS
J SI
J SCK
CHECK PIN (AF JIG)
CN652
ZOOM T
ZOOM W
M905 ZOOM MOTOR
AA-58 0-768-324-01
S901 ZOOM SWITCH UNIT
W550
CN501
K IN 0
K IN 1
K IN 2
K OUT 0
K OUT 1
K OUT 2
K OUT 3
SS GND
LCD CS
SS 4.9V
SCK
SYS RESET
DATA TO SLAVE
CHASSIS GND
DATA TO MASTER
REMO CS
TALLY
LI (+)
K IN 4
K IN 5
FP-413
IC960
0-201-945-02
REMOTE CONTROL RECIEVER (FLEXIBLE MOUNT)
FP-414
0-201-925-02
W670
CN950
CK-46
ND650
LCD
FP-415
0-201-926-02
W671
W608
K OUT3
K IN 2
SHASSIS GND
ZK-12
AF BOARD
W801
AF UNREG
AF CONT
12
W950
LI (+)
LI (-)
DL-51
0-768-325-01
CN961
LI-36

FRAME FRAME

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this , the necessary note is printed in each block.)

- **For printed wiring boards.**
- ○— : indicated a lead wire mounted on the component side.
- —— : indicated a lead wire mounted on the conductor side.
- ■ : Parts mounted on the conductor side.
- ▨ : Pattern from the side which enables seeing.
- ▒ : Pattern of the rear side.
- Circled numbers refer to waveforms.
- (B) or (F), etc. of capacitors indicate the temperature characteristics.
- ● : Through hole.

Caution:

Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the pattern face are indicated.

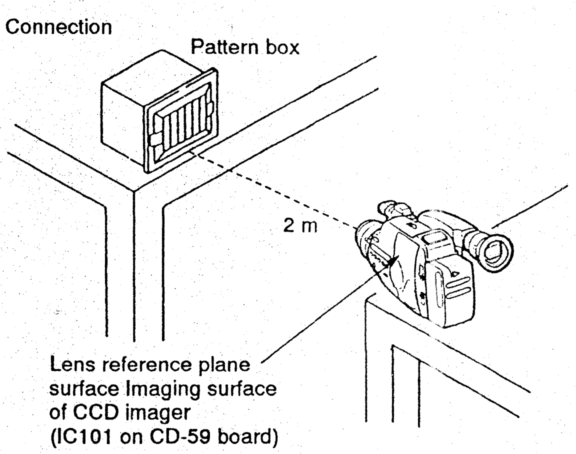
- **For schematic diagrams.**
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minuts side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4W unless otherwise noted.
  Chip resistor are 1/10W unless otherwise noted.
  kΩ : 1000Ω , MΩ : 1000kΩ .
- All capacitors are in μ F unless otherwise noted. pF: μ μ F.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ⊡ : nonflammable resistor.
- ⊡∿ : fusible resistor.
- ▭ : panel designation.
- △ : internal component.
- ▭ : adjustment for repeair.
- ━━ : B+ Line.
- ‐ ‐ ‐ : B– Line.
- ⇨ : IN/OUT direction of (+, –) B LINE.
- Circled numbers refer to waveforms.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safty. Replace only with part number specified.	**Note:** Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

- **Measuring conditions voltage value and waveform.**
  (CAMERA, DIGITAL TITLE block)
- The object is color bar chart of pattern box.
- Voltages are dc between ground and measurement points.
  Readings are taken with a digital multimeter (DC 10MΩ).
- Voltage variations may be noted due to normal production tolerances.

1. Connection



2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

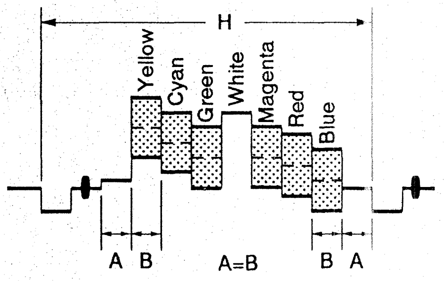


Fig. a (Video output terminal output waveform

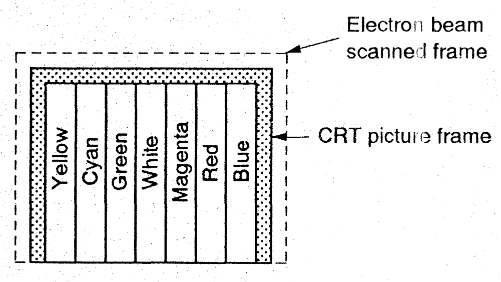


Fig. (Picture on monitor TV)

(VIDEO, SERVO/SYSTEM CONTROL, MODE CONTROL, VIEW FINDER block)
- Voltages are dc between ground and measurement points.
- Readings are taken with a color-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.

CD-59 (CCD IMAGER) PRINTED WIRING BOARD

— Ref. No. CD-59 BOARD: 6000 series —

* A-7062-712-A CD-59 BOARD COMPLETE
****

(DIODE)

D101	8-719-404-46	DIODE	MA110
D102	8-719-404-52	DIODE	MA143
D122	8-719-404-32	DIODE	MA141WA
D123	8-719-404-46	DIODE	MA110
D124	8-719-404-32	DIODE	MA141WA
D126	8-719-404-46	DIODE	MA110
D128	8-719-404-46	DIODE	MA110

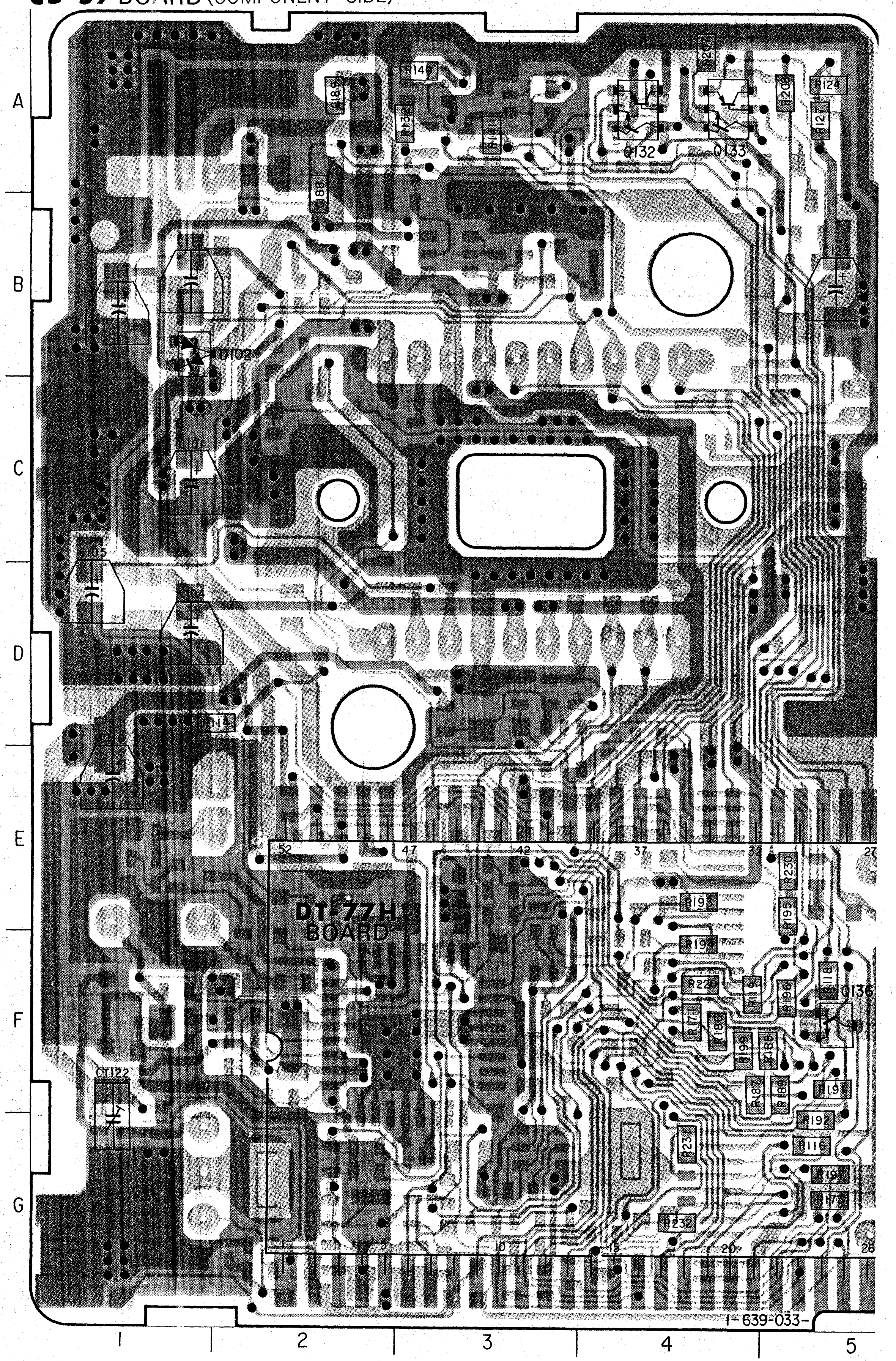
(IC)

IC121	8-752-326-08	IC	CXD1159Q

(TRANSISTOR)

Q102	8-729-905-35	TRANSISTOR	2SC4081
Q121	8-729-907-47	TRANSISTOR	IMZ1T108
Q122	8-729-402-78	TRANSISTOR	XN6401
Q123	8-729-402-19	TRANSISTOR	XN6501
Q125	8-729-905-35	TRANSISTOR	2SC4081
Q126	8-729-907-47	TRANSISTOR	IMZ1T108
Q129	8-729-905-23	TRANSISTOR	2SA1576
Q131	8-729-907-47	TRANSISTOR	IMZ1T108
Q132	8-729-907-47	TRANSISTOR	IMZ1T108
Q133	8-729-907-47	TRANSISTOR	IMZ1T108
Q135	8-729-907-47	TRANSISTOR	IMZ1T108
Q136	8-729-402-45	TRANSISTOR	UN5212

CD-59 BOARD (COMPONENT SIDE)


A
B
C
D
E
F
G
1
2
3
4
5
R144
Q132
Q133
R124
D102
DT-77H
BOARD
52
47
42
37
27
R193
R195
R230
R220
R191
R192
R116
R232
Q136
Q122
5
10
15
20
26
1-639-033-

09

CD-59 (CCD IMAGER) PRINTED WIRING BOARD

— Ref. No. CD-59 BOARD: 6000 series —

* A-7062-712-A CD-59 BOARD COMPLETE
****

〈 DIODE 〉

D101	8-719-404-46	DIODE	MA110
D102	8-719-404-52	DIODE	MA143
D122	8-719-404-32	DIODE	MA141WA
D123	8-719-404-46	DIODE	MA110
D124	8-719-404-32	DIODE	MA141WA
D126	8-719-404-46	DIODE	MA110
D128	8-719-404-46	DIODE	MA110

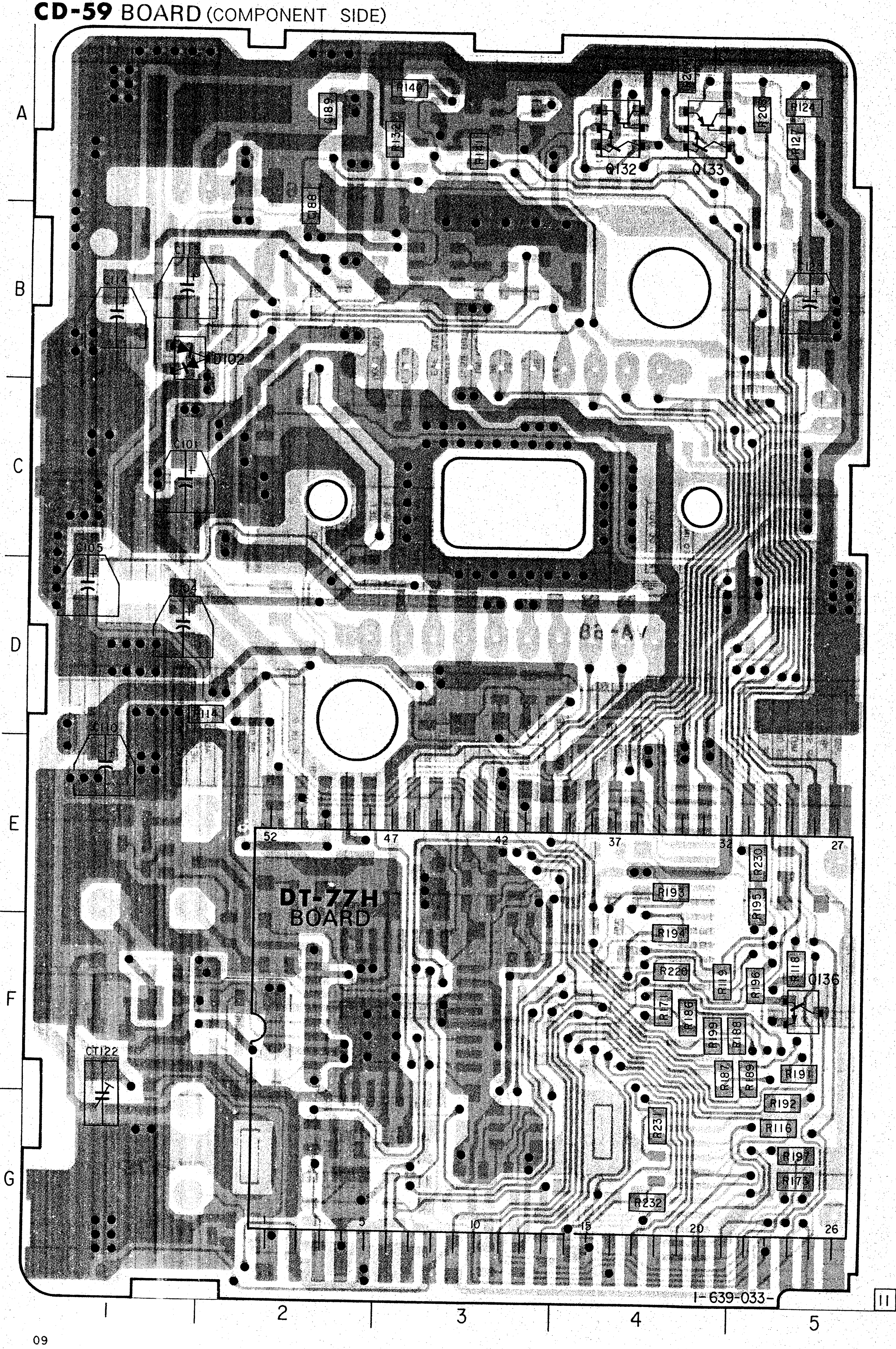
〈 IC 〉

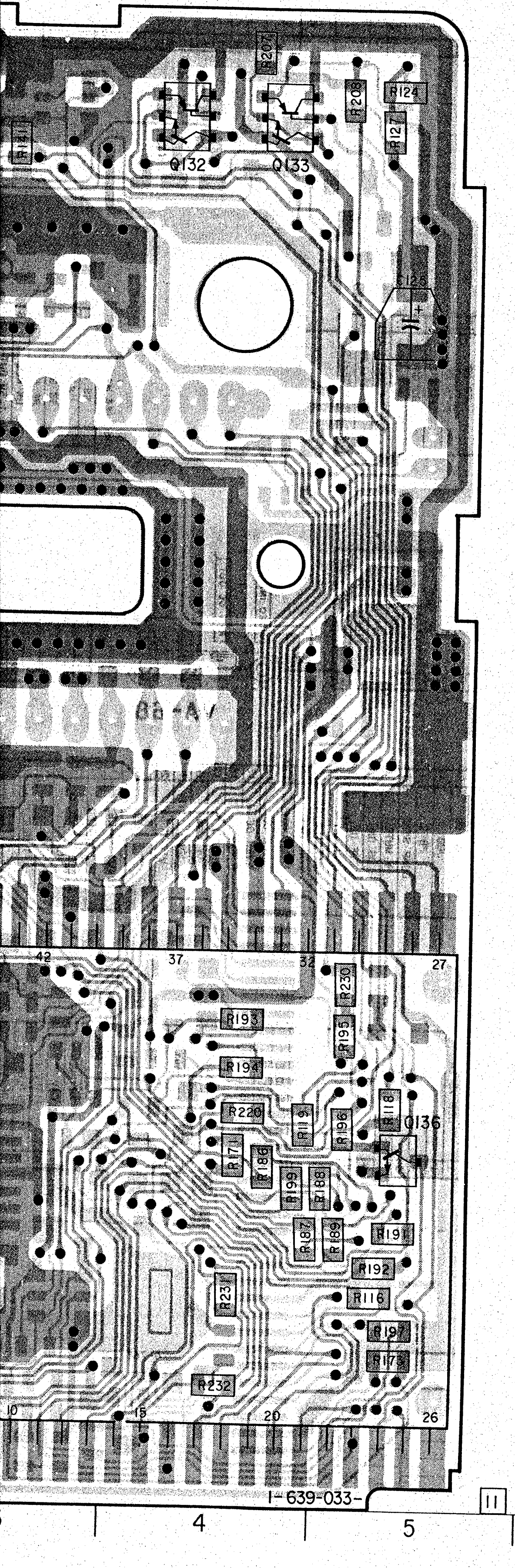
IC121	8-752-326-08	IC	CXD1159Q

〈 TRANSISTOR 〉

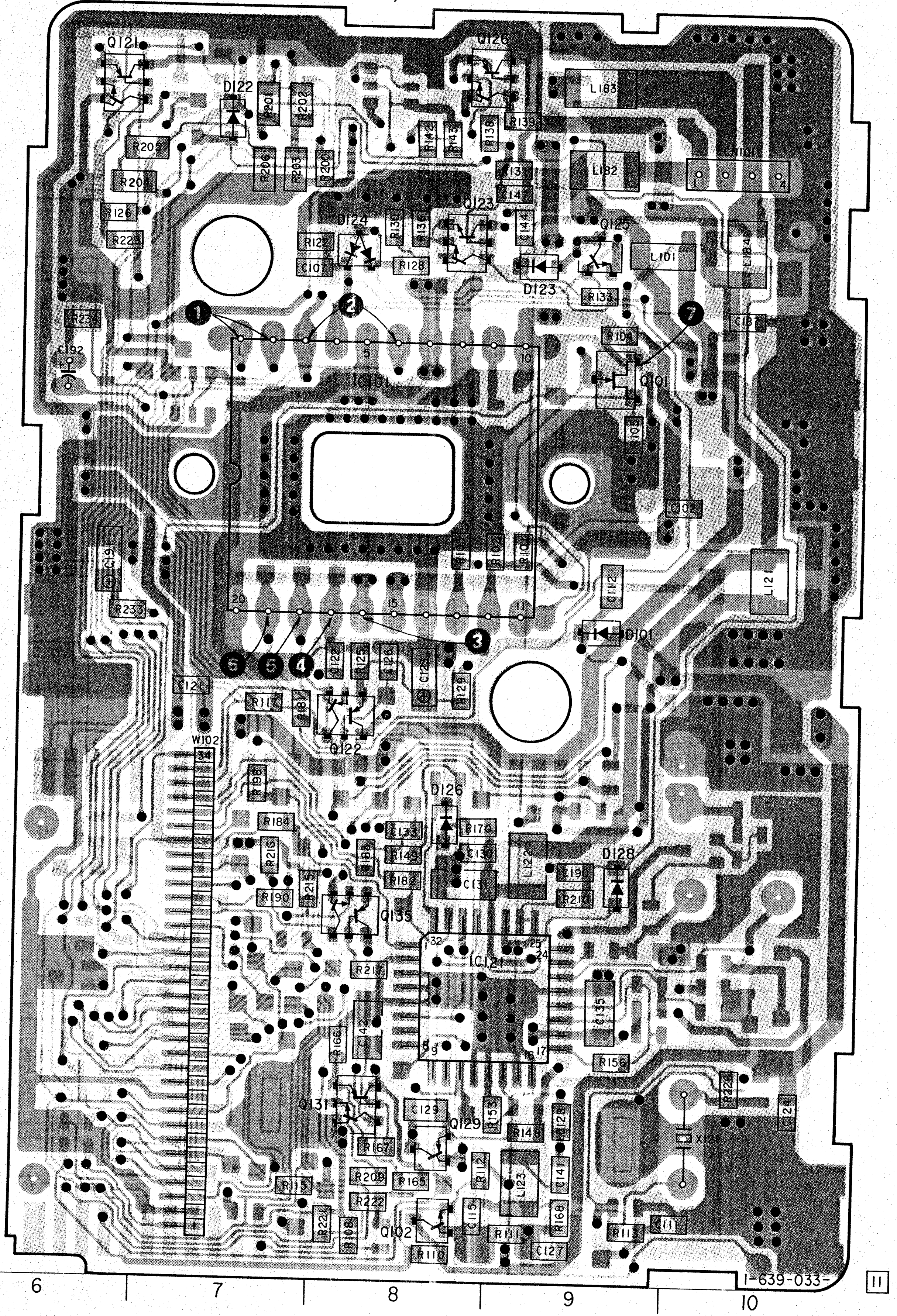
Q102	8-729-905-35	TRANSISTOR	2SC4081
Q121	8-729-907-47	TRANSISTOR	IMZ1T108
Q122	8-729-402-78	TRANSISTOR	XN6401
Q123	8-729-402-19	TRANSISTOR	XN6501
Q125	8-729-905-35	TRANSISTOR	2SC4081
Q126	8-729-907-47	TRANSISTOR	IMZ1T108
Q129	8-729-905-23	TRANSISTOR	2SA1576
Q131	8-729-907-47	TRANSISTOR	IMZ1T108
Q132	8-729-907-47	TRANSISTOR	IMZ1T108
Q133	8-729-907-47	TRANSISTOR	IMZ1T108
Q135	8-729-907-47	TRANSISTOR	IMZ1T108
Q136	8-729-402-45	TRANSISTOR	UN5212

CD-59 BOARD (COMPONENT SIDE)


A
B
C
D
E
F
G
1
2
3
4
5
Q132
Q133
R124
R140
D102
C101
C105
CT122
DT-77H
BOARD
R193
R194
R195
R230
R229
Q136
R192
R191
R116
R197
R232
R231
52
47
42
37
32
27
5
10
15
20
26
1-639-033-
11
09


Q132
Q133
R207
R208
R124
R127
L125
42
37
32
27
R230
R193
R195
R194
R220
R119
R196
R118
Q136
R171
R186
R199
R188
R182
R189
R191
R192
R23
R116
R197
R173
R232
10
15
20
26
1-639-033-
11
4
5

CD-59 BOARD (CONDUCTOR SIDE)


Q121
D122
R201
R202
Q126
L183
R205
R206
R203
R200
R142
R143
R136
R139
CN101
R204
R126
R224
L182
R131
C142
D124
R135
R134
Q123
C144
Q125
R122
C107
R128
D123
L101
L184
R133
R234
C192
IC101
10
R104
Q101
C187
R103
C102
R102
R101
C112
L121
20
15
11
D101
C191
R233
C122
R125
R125
C123
R129
R121
R117
R181
Q122
W102
34
R198
D126
R184
R170
C133
R216
R149
C130
R190
R215
R185
R183
C131
L122
C190
R218
D128
Q135
R217
32
25
24
IC121
C135
R166
R142
9
17
R156
R224
Q131
C129
Q129
R153
R148
C128
C124
X121
R167
R209
R165
R112
L123
C141
R115
R222
R224
R108
Q102
C115
R111
R168
R113
C11
R110
C127
1-639-033-
11
6
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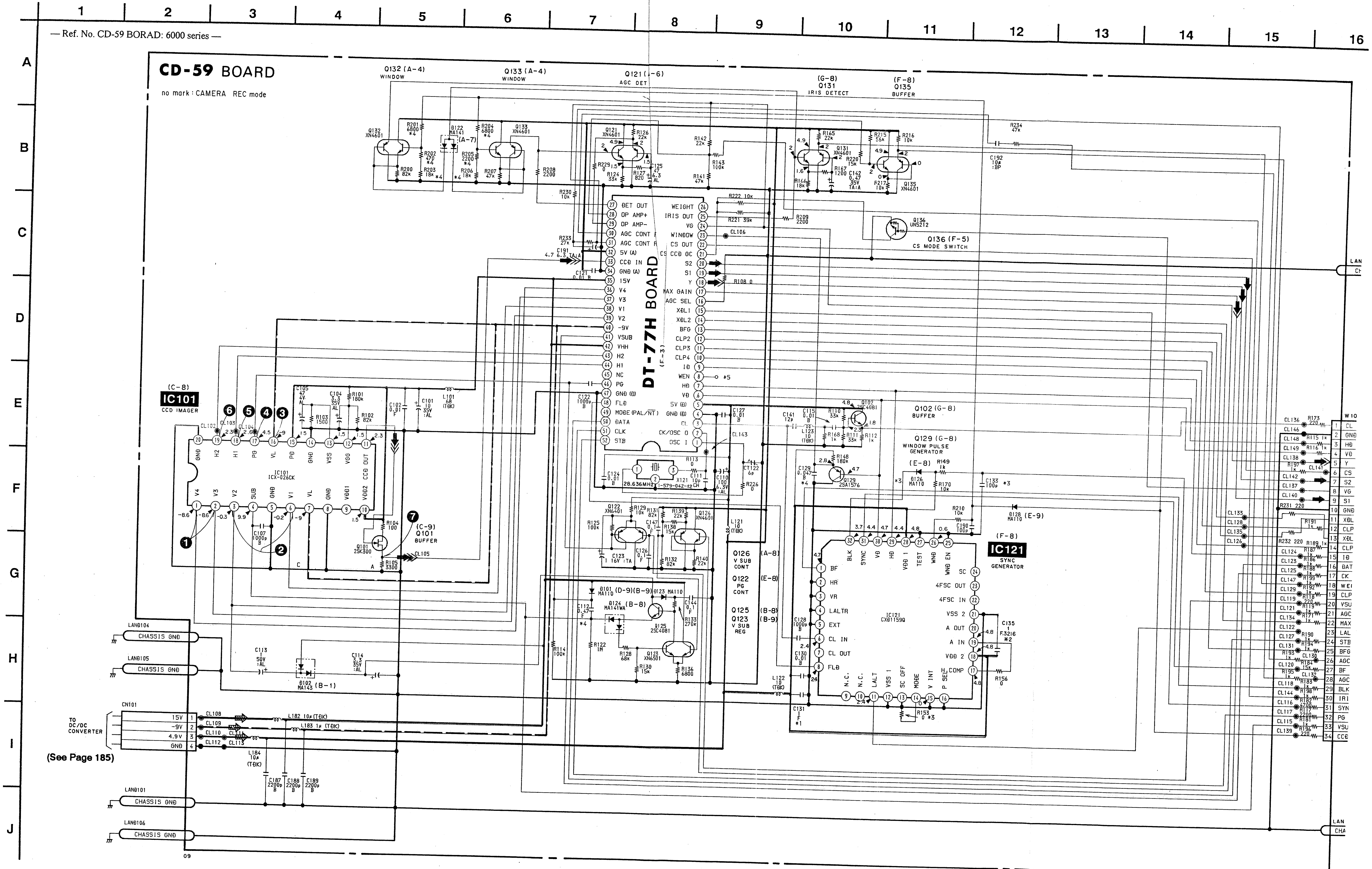
9
10

CAMERA **CAMERA**

CD-59 (CCD IMAGER) SCHEMATIC DIAGRAM



— Ref. No. CD-59 BORAD: 6000 series —

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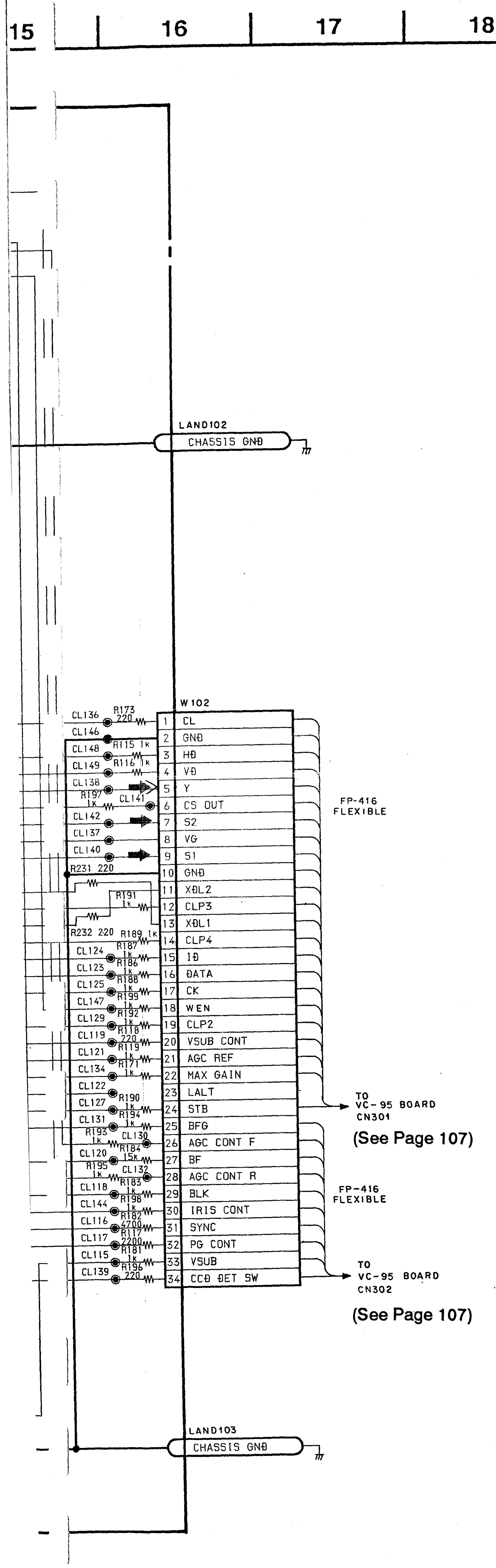
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
CD-59 BOARD
no mark : CAMERA REC mode
Q132 (A-4) WINDOW
Q133 (A-4) WINDOW
Q121 (A-6) AGC DET
(G-8) Q131 IRIS DETECT
(F-8) Q135 BUFFER
Q136 (F-5) CS MODE SWITCH
Q136 UN5212
Q132 XN4601
Q133 XN4601
Q121 XN4601
Q131 XN4601
Q135 XN4601
D122 MA141 (A-7)
DT-77H BOARD
(F-3)
DET OUT
OP AMP+
OP AMP-
AGC CONT F
AGC CONT R
5V (A)
CCD IN
GND (A)
15V
V4
V3
V1
V2
-9V
VSUB
VHH
H2
H1
NC
PG
GND (D)
FLD
MODE (PAL/NT)
DATA
CLK
STB
WEIGHT
IRIS OUT
VG
WINDOW
CS OUT
CS CCD GC
S2
S1
Y
MAX GAIN
AGC SEL
XDL1
XDL2
BFG
CLP2
CLP3
CLP4
ID
WEN
HD
VD
5V (D)
GND (D)
CL
CK/OSC O
OSC I
*5
X121 28.636MHz 1-579-042-12
(C-8) IC101 CCD IMAGER
IC101 ICX-026CK
GND
H2
H1
PG
VL
PD
GND
VSS
VGG
CCD OUT
V4
V3
V2
SUB
GND
V1
VL
GND
VDD1
VDD2
(C-9) Q101 BUFFER
Q101 2SK300
Q102 (G-8) BUFFER
Q102 2SC4081
Q129 (G-8) WINDOW PULSE GENERATOR
Q129 2SA1576
(E-8)
D126 MA110
D128 MA110 (E-9)
(F-8) IC121 SYNC GENERATOR
IC121 CX01159Q
BLK
SYNC
VD
HD
VDD 1
TEST
WND
WND EN
BF
HR
VR
LALTR
EXT
CL IN
CL OUT
FLD
SC
4FSC OUT
4FSC IN
VSS 2
A OUT
A IN
VDD 2
H COMP
N.C.
N.C.
LALT
VSS 1
SC OFF
MODE
V INT
P SEL
Q122 XN6401
Q126 XN4601
Q126 V SUB CONT (A-8)
Q122 PG CONT (E-8)
Q125 Q123 V SUB REG (B-8) (B-9)
D101 MA110 (D-9)
D123 MA110 (B-9)
D124 MA141WA (B-8)
Q125 2SC4081
Q123 XN6501
D102 MA143 (B-1)
LAND104 CHASSIS GND
LAND105 CHASSIS GND
LAND101 CHASSIS GND
LAND106 CHASSIS GND
CN101
TO DC/DC CONVERTER
15V
-9V
4.9V
GND
L182 10μ (TDK)
L183 1μ (TDK)
L184 10μ (TDK)
C187 2200p B
C188 2200p B
C189 2200p B
W10
1 CL
2 GND
3 HD
4 VD
5 Y
6 CS
7 S2
8 VG
9 S1
10 GND
11 XDL
12 CLP
13 XDL
14 CLP
15 ID
16 DAT
17 CK
18 WEI
19 CLP
20 VSU
21 AGC
22 MAX
23 LAL
24 STB
25 BFG
26 AGC
27 BF
28 AGC
29 BLK
30 IRI
31 SYN
32 PG
33 VSU
34 CCD
LAN
CH
LAN
CHA
09

(See Page 185)


15
16
17
18
19
20
LAND102
CHASSIS GND
W102
CL136
R173 220
CL146
CL148
R115 1k
CL149
R116 1k
CL138
R197 1k
CL141
CL142
CL137
CL140
R231 220
R191 1k
R232 220
R189 1k
CL124
R187 1k
CL123
R186 1k
CL125
R188 1k
CL147
R199 1k
CL129
R192 1k
CL119
R118 220
CL121
R119 1k
CL134
R171 1k
CL122
CL127
R190 1k
CL131
R194 1k
R193 1k
CL130
CL120
R184 15k
R195 1k
CL132
CL118
R183 1k
CL144
R198 1k
CL116
R182 4700
CL117
R117 2200
CL115
R181 1k
CL139
R196 220
1 CL
2 GND
3 HD
4 VD
5 Y
6 CS OUT
7 S2
8 VG
9 S1
10 GND
11 XDL2
12 CLP3
13 XDL1
14 CLP4
15 ID
16 DATA
17 CK
18 WEN
19 CLP2
20 VSUB CONT
21 AGC REF
22 MAX GAIN
23 LALT
24 STB
25 BFG
26 AGC CONT F
27 BF
28 AGC CONT R
29 BLK
30 IRIS CONT
31 SYNC
32 PG CONT
33 VSUB
34 CCD DET SW
FP-416 FLEXIBLE
TO VC-95 BOARD CN301
(See Page 107)
FP-416 FLEXIBLE
TO VC-95 BOARD CN302
(See Page 107)
LAND103
CHASSIS GND

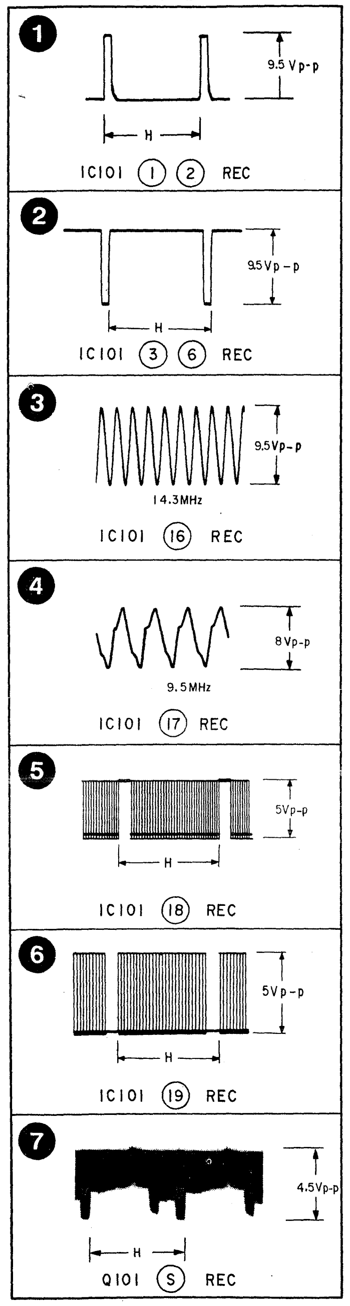
CAUTIONS FOR REPLACING THE CCD IMAGER

- According to type of CCD imager (IC101 on the CD-59 board), it is necessary to require the compensating ROM (IC001 on the DT-77H board).
  The repairing CCD imager does not require the compensating ROM.
  So when replacing the CCD imager on which the compensating ROM is installed, remove the compensating ROM before replacement.
- Since the mounted CD-59 and DT-77H boards which are supplied as a repair parts are not installed IC101 and IC001 respectively, replace the respective ICs from the previous board to the new when replacing each board.
- When you replaced the CCD imager, perform the overall camera head adjustment.
- CCD imager has such a structure that it may be spoiled by static electricity, so handle it with a care similar for MOS IC. Further, be sure that the light receiving part has no stick of dust and no entry of bright light.

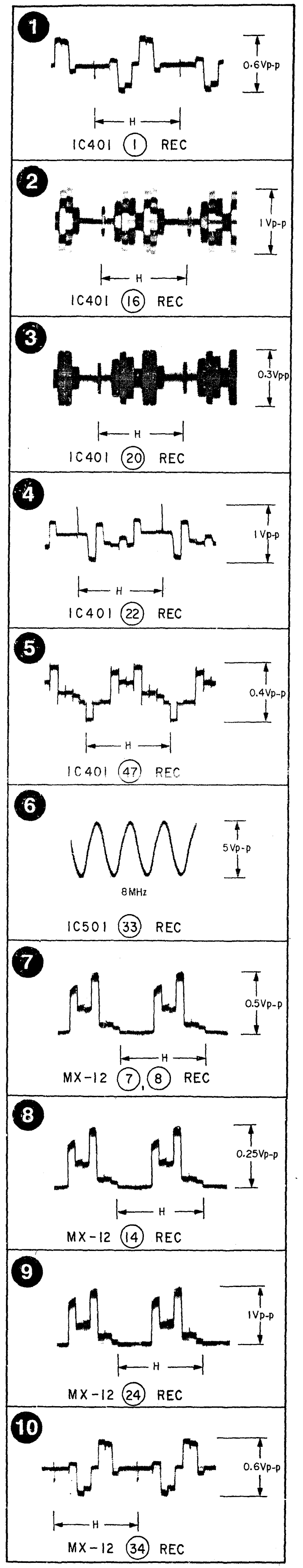
- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA/DATA	
REC	➡	⇨	⇛	
PB				

CD-59 BOARD


❶
9.5 Vp-p
H
IC101 ① ② REC
❷
9.5 Vp-p
H
IC101 ③ ⑥ REC
❸
9.5Vp-p
14.3MHz
IC101 ⑯ REC
❹
8 Vp-p
9.5MHz
IC101 ⑰ REC
❺
5Vp-p
H
IC101 ⑱ REC
❻
5Vp-p
H
IC101 ⑲ REC
❼
4.5Vp-p
H
Q101 Ⓢ REC

VC-95 BOARD (1/2)



VC-95 (CAMERA LENS DRIVE) PRINTED WIRING BOARDS

— Ref. No. VC-95 BOARD: 6000 series —

A-7062-711-A VC-95 BOARD COMPLETE
****

(DIODE)

D501	8-719-404-46	DIODE	MA110
D502	8-719-404-46	DIODE	MA110
D503	8-719-404-46	DIODE	MA110
D504	8-719-404-46	DIODE	MA110
D651	8-719-976-90	DIODE	DTZ4. 3A

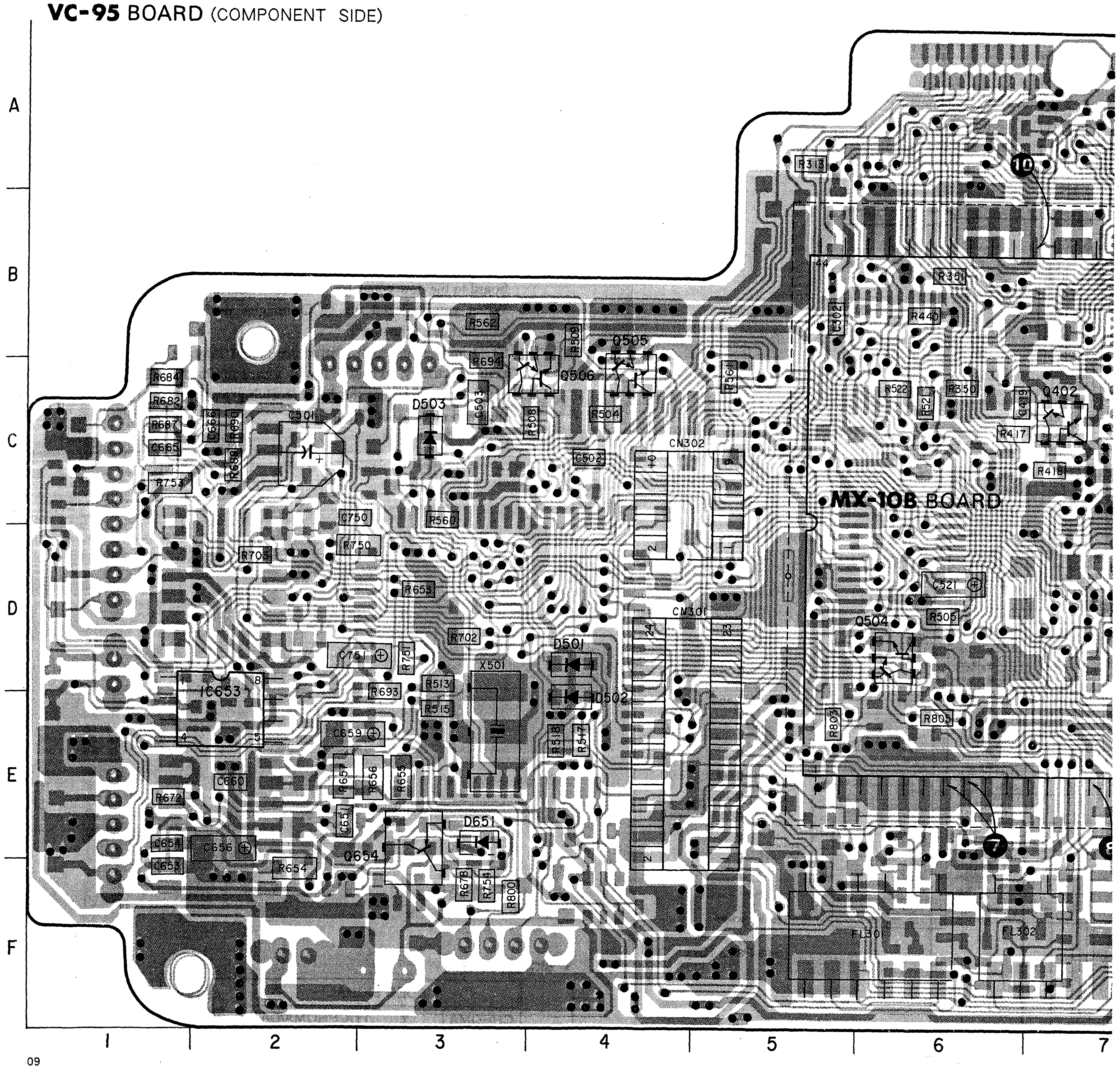
(IC)

IC301	8-759-635-27	IC	M62352GP
IC401	8-752-038-XX	IC	CXA1392R
IC501	8-759-038-85	IC	MC68HC11E9FU-SC400226
IC504	8-759-635-27	IC	M62352GP
IC508	8-759-937-56	IC	S-8054ALB-LM
IC509	8-759-509-05	IC	XRU4066BF
IC510	8-759-998-96	IC	LM324DR
IC651	8-759-981-82	IC	RC3414M
IC652	8-759-998-96	IC	LM324DR
IC653	8-759-500-11	IC	MM1036XFF
IC656	8-759-998-96	IC	LM324DR-E1

(TRANSISTOR)

Q301	8-729-905-23	TRANSISTOR	2SA1576
Q302	8-729-905-23	TRANSISTOR	2SA1576
Q303	8-729-907-47	TRANSISTOR	IMZ1T108
Q402	8-729-907-47	TRANSISTOR	IMZ1T108
Q403	8-729-905-23	TRANSISTOR	2SA1576
Q404	8-729-905-35	TRANSISTOR	2SC4081
Q504	8-729-925-39	TRANSISTOR	IMH8
Q505	8-729-925-39	TRANSISTOR	IMH8
Q506	8-729-925-77	TRANSISTOR	IMH6
Q507	8-729-420-50	TRANSISTOR	UN5215
Q508	8-729-402-78	TRANSISTOR	XN6401
Q509	8-729-925-39	TRANSISTOR	IMH8
Q510	8-729-905-35	TRANSISTOR	2SC4081
Q513	8-729-907-47	TRANSISTOR	IMZ1T108
Q516	8-729-905-35	TRANSISTOR	2SC4081
Q652	8-729-402-42	TRANSISTOR	UN5213
Q653	8-729-905-23	TRANSISTOR	2SA1576
Q654	8-729-106-60	TRANSISTOR	2SB1115A
Q655	8-729-905-35	TRANSISTOR	2SC4081
Q656	8-729-821-88	TRANSISTOR	2SK1332-3

VC-95 BOARD (COMPONENT SIDE)


A
B
C
D
E
F
1
2
3
4
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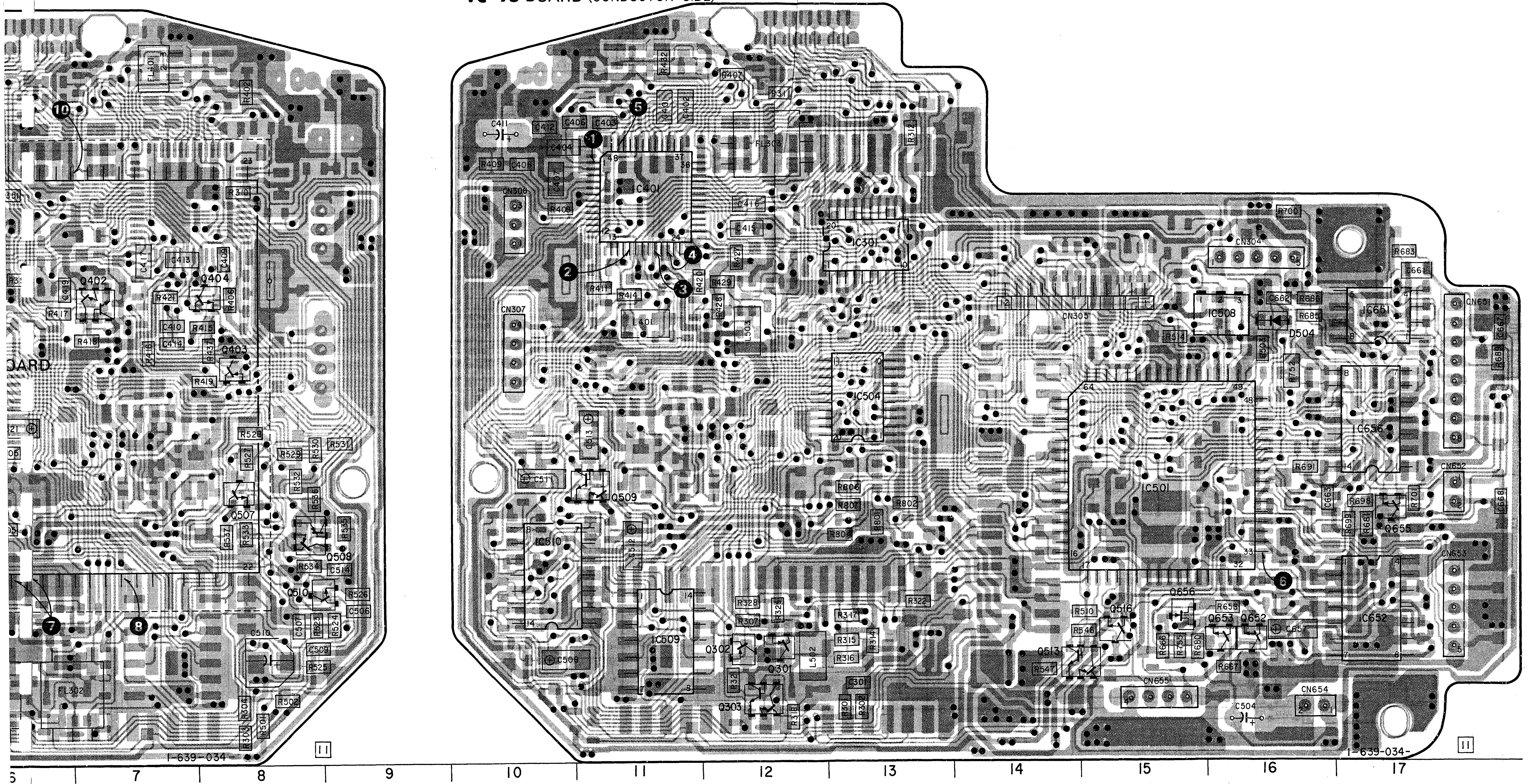
7
09
MX-108 BOARD
R313
R351
R440
R522
R350
Q402
R417
R418
R562
Q505
Q506
R694
D503
Q301
R684
R682
R687
C665
R753
R504
C502
CN302
C750
R750
R705
R560
R653
CN301
C521
Q504
R505
C761
R702
D501
D502
X501
IC653
R693
R513
R515
C659
R805
R803
C660
R678
C656
C658
C655
R654
Q654
D651
R678
R758
R800
FL301
FL302

VC-95 BOARD (CONDUCTOR SIDE)



FL401
R402
C411
C412
C406
C403
C404
C407
R409
C408
CN306
R408
IC401
C401
C402
R432
R407
R311
FL303
R312
C416
C415
R427
C429
R420
R428
R411
R414
L401
L503
CN307
IC301
CN304
R700
R683
C661
CN305
IC508
C662
R686
R685
D504
IC651
CN651
R514
R503
R752
IC504
IC501
IC656
R691
C663
R698
R701
Q655
CN652
C668
R310
C413
C414
C410
Q402
Q404
Q403
R417
R418
R421
R415
R416
R419
R528
R529
R530
R531
R527
R532
R536
Q507
R533
R537
R535
Q508
R534
C514
Q510
R526
C506
C507
R523
R524
C509
C510
R525
FL302
R304
R501
R502
R303
C513
C511
Q509
IC510
C512
IC509
C505
R806
R807
R802
R801
R803
R328
R307
R329
R322
R317
R315
R316
R314
Q302
Q301
L302
R321
R301
Q303
R318
R305
R302
R510
Q516
R546
Q513
R547
Q656
R658
Q653
Q652
C657
R666
R755
R680
R667
IC652
CN653
CN655
C504
CN654
1-639-034-
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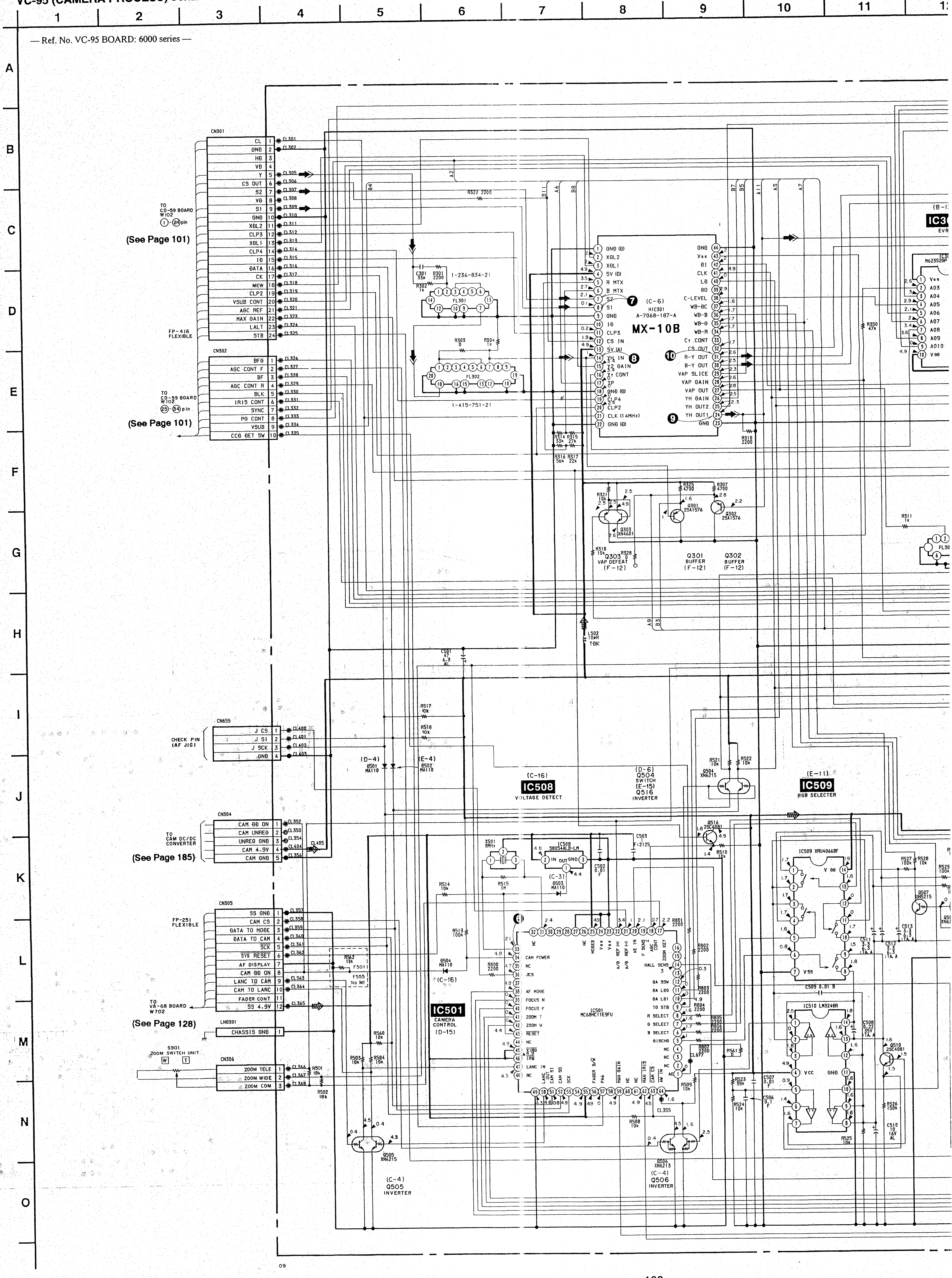
17

VC-95 (CAMERA PROCESS) SCHEMATIC DIAGRAM

— Ref. No. VC-95 BOARD: 6000 series —



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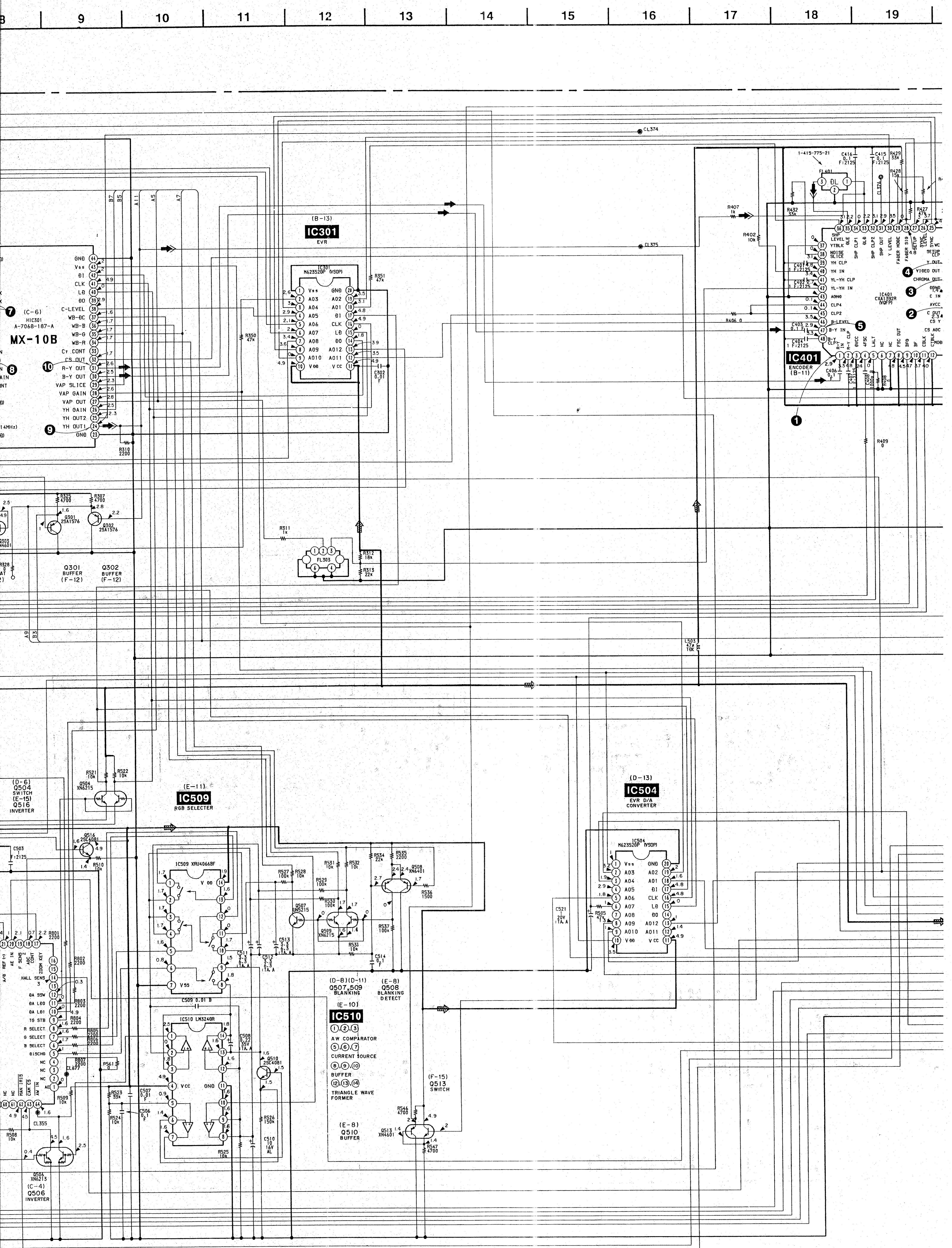
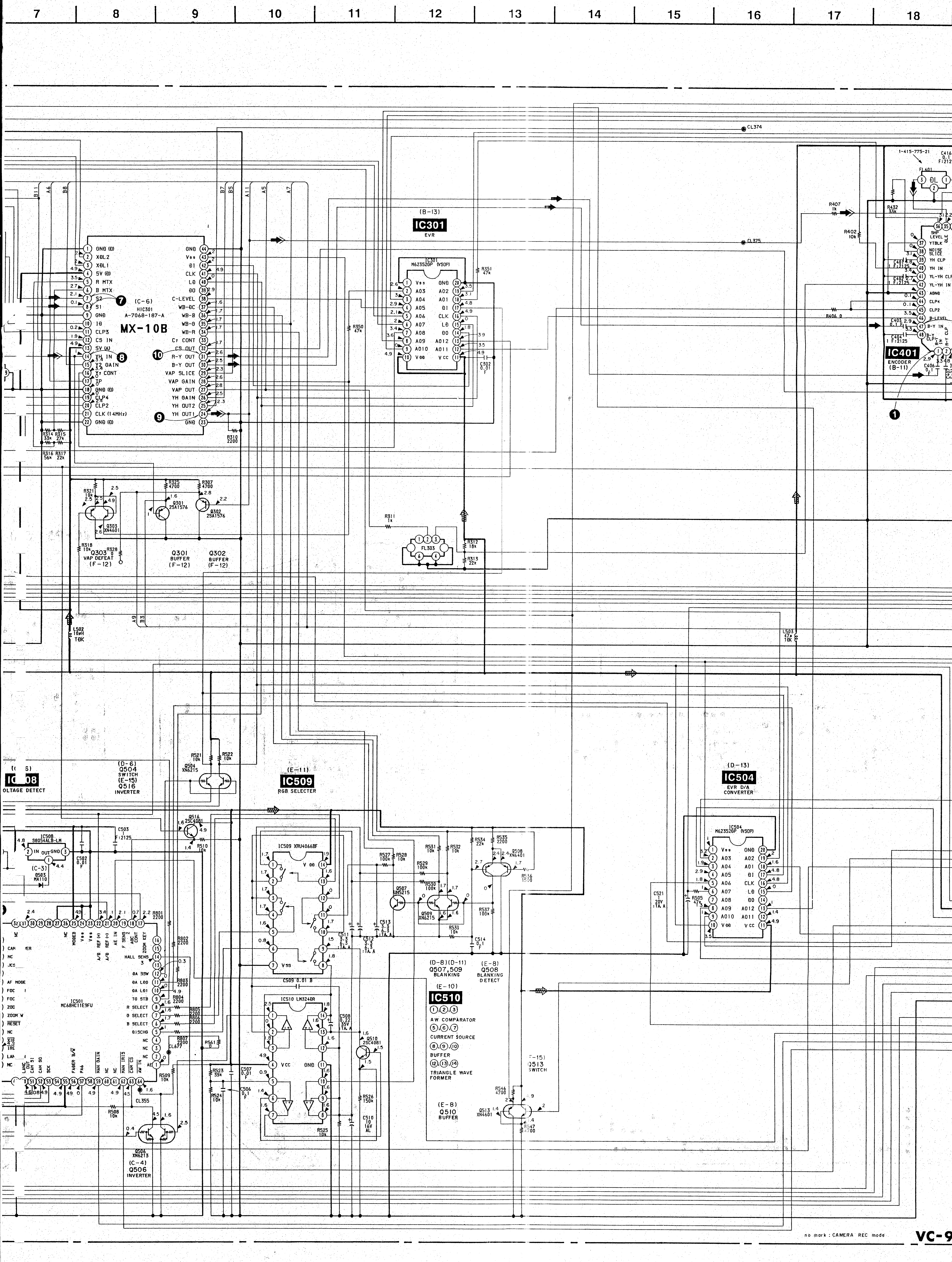
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
CN301
TO CD-59 BOARD W102 ①-㉔pin
(See Page 101)
FP-416 FLEXIBLE
CN302
TO CD-59 BOARD W102 ㉕-㉞pin
(See Page 101)
CN655
CHECK PIN (AF JIG)
CN304
TO CAM DC/DC CONVERTER
(See Page 185)
CN305
FP-251 FLEXIBLE
TO VA-68 BOARD W702
(See Page 128)
LN0301
CHASSIS GND
S901 ZOOM SWITCH UNIT
CN306
ZOOM TELE
ZOOM WIDE
ZOOM COM
IC301
A-7068-187-A
MX-10B
FL301
1-236-834-21
FL302
1-415-751-21
Q301 BUFFER (F-12)
Q302 BUFFER (F-12)
Q303 VAP DEFEAT (F-12)
L502 10μH TDK
IC508 VOLTAGE DETECT
IC508 S8054ALB-LM
(D-6) Q504 SWITCH
(E-15) Q516 INVERTER
IC509 RGB SELECTER
IC509 XRU4066BF
IC510 LM3240R
IC501 CAMERA CONTROL (D-15)
IC501 MC68HC11E9FU
X501 8MHz
(C-4) Q505 INVERTER
(C-4) Q506 INVERTER
(B-1
IC3
M623520P


8
9
10
11
12
13
14
15
16
17
18
19
(C-6)
HIC301
A-7068-187-A
MX-10B
(B-13)
IC301
EVR
IC301
M62352GP (VSOP)
1-415-775-21
FL401
IC401
CXA1392R
(VQFP)
IC401
ENCODER
(B-11)
Q301
2SA1576
Q302
2SA1576
Q301
BUFFER
(F-12)
Q302
BUFFER
(F-12)
FL303
CL374
CL375
(D-6)
Q504
SWITCH
(E-15)
Q516
INVERTER
Q504
XN6215
Q516
2SC4081
(E-11)
IC509
RGB SELECTER
IC509 XRU4066BF
IC510 LM324BR
(D-13)
IC504
EVR D/A
CONVERTER
IC504
M62352GP (VSOP)
(D-8)(D-11)
Q507,509
BLANKING
(E-8)
Q508
BLANKING
DETECT
(E-10)
IC510
①②③
AW COMPARATOR
⑤⑥⑦
CURRENT SOURCE
⑧⑨⑩
BUFFER
⑫⑬⑭
TRIANGLE WAVE
FORMER
(F-15)
Q513
SWITCH
(E-8)
Q510
BUFFER
Q506
XN6213
(C-4)
Q506
INVERTER
CL355

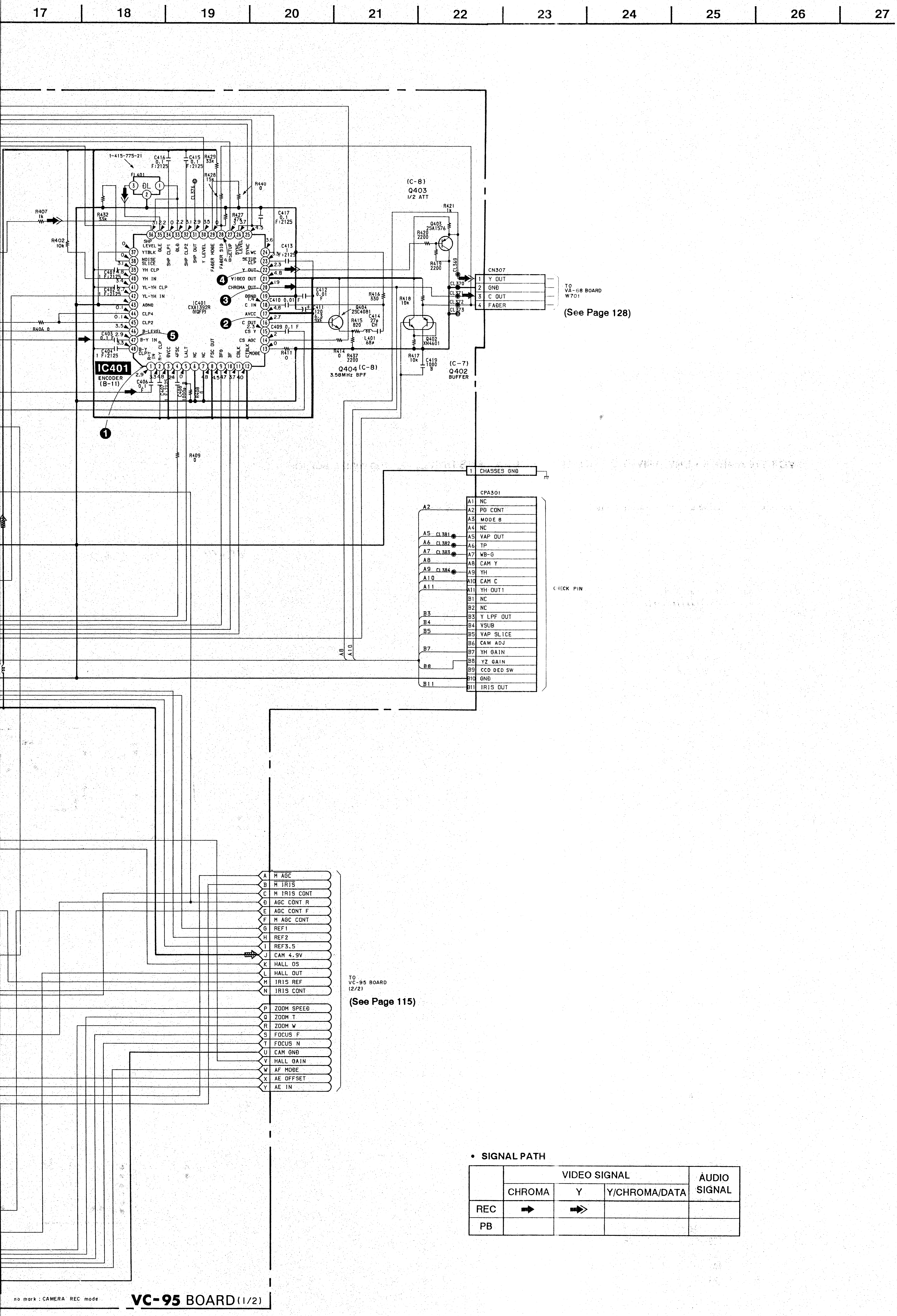
no mark ; CAMERA REC mode

VC-95 BOARD(1/


7
8
9
10
11
12
13
14
15
16
17
18
(C-6)
HIC301
A-7068-187-A
MX-10B
GND (D)
XΦL2
XΦL1
5V (D)
R MTX
B MTX
S2
S1
GND
ID
CLP3
CS IN
5V (A)
YH IN
YL GAIN
YT CONT
TP
GND (D)
CLP4
CLP2
CLK (14MHz)
GND (D)
Vss
Φ1
CLK
LΦ
ΦΦ
C-LEVEL
WB-ΦC
WB-B
WB-G
WB-R
CT CONT
CS OUT
R-Y OUT
B-Y OUT
VAP SLICE
VAP GAIN
VAP OUT
YH GAIN
YH OUT2
YH OUT1
(B-13)
IC301
EVR
IC301
M62352GP (VSOP)
CL374
CL375
R350 47k
R351 47k
C302 0.01 F
R310 2200
R314 33k
R315 27k
R316 56k
R317 22k
R321 10k
R325 4700
R307 4700
Q301 2SA1576
Q302 2SA1576
Q303 XN4601
R318 10k
R328 0
Q303 VAP DEFEAT (F-12)
Q301 BUFFER (F-12)
Q302 BUFFER (F-12)
R311 1k
FL303
R312 18k
R313 22k
L502 10µH TOK
L503 47µ TOK
1-415-775-21
C416 0.1 F:2125
FL401
R407 1k
R432 33k
R402 10k
R406 0
SHP LEVEL
YTBLK
NOISE SLICE
YH CLP
YH IN
YL-YH CLP
YL-YH IN
AGND
CLP4
CLP2
B-LEVEL
B-Y IN
B-Y CLP
IC401
ENCODER (B-11)
C401 1 F:2125
C402 2.2 F:2125
C403 0.1 F
C404 1 F:2125
C406 0.1 F
IC508
VOLTAGE DETECT
(D-6)
Q504 SWITCH (E-15)
Q516 INVERTER
R521 10k
R522 10k
Q504 XN6215
(E-11)
IC509
RGB SELECTER
Q516 2SC4081
R510 10k
C503 F:2125
IC508 S8054ALB-LM
IN OUT GND
C502 0.01 F
(C-3)
D503 MA110
IC501 MC68HC11E9FU
MODEB
Vss
Vdd
REF (+)
REF (-)
AE IN
F SDAT
NC CONT
ZOOM KEY
HALL SENS
ØA SSW
ØA LOD
ØA LO1
TG STB
R SELECT
G SELECT
B SELECT
Ø1SCHG
AF MODE
ZOOM W
RESET
LANC
SCK
FADER B/W
PA6
MAIN GAIN
MAIN IRIS
CAM CS
AW IN
R801 2200
R802 2200
R803 2200
R804 2200
R805 2200
R806 2200
R807 2200
CL677
R561 0
R509 10k
CL355
R508 10k
Q506 XN6213
(C-4)
Q506 INVERTER
IC509 XRU4066BF
V DD
Vss
C509 0.01 B
IC510 LM324GR
VCC
GND
R523 39k
R524 10k
C507 0.01 F
C506 0.1 F
R525 10k
R526 150k
C510 10 16V AL
C508 0.22 35V TA A
C511 3.3 6.3 TA A
C512 3.3 6.3 TA A
C513 3.3 6.3 TA A
R527 100k
R528 10k
R529 100k
R530 100k
R531 10k
R532 10k
Q507 UN5215
Q509 XN6215
R533 10k
R537 100k
C514 0.1 F
R534 22k
R535 2200
Q508 XN6401
R536 1500
(D-8)(D-11)
Q507,509
BLANKING
(E-8)
Q508
BLANKING DETECT
(E-10)
IC510
①②③ AW COMPARATOR
⑤⑥⑦ CURRENT SOURCE
⑧⑨⑩ BUFFER
⑫⑬⑭ TRIANGLE WAVE FORMER
Q510 2SC4081
(E-8)
Q510
BUFFER
(F-15)
Q513
SWITCH
R546 4700
Q513 XN4601
R547 4700
(D-13)
IC504
EVR D/A CONVERTER
IC504 M62352GP (VSOP)
C521 1 20V TA A
R505 47k
Vss
A03
A04
A05
A06
A07
A08
A09
A010
VDD
GND
A02
A01
Φ1
CLK
LΦ
ΦΦ
A012
A011
VCC

no mark : CAMERA REC mode

VC-9


17
18
19
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21
22
23
24
25
26
27
IC401
ENCODER
(B-11)
IC401
CXA1392R
(VQFP)
1-415-775-21
FL401
C416 0.1 F:2125
C415 0.1 F:2125
R429 33k
R428 15k
R440 0
R427 4.7k
C417 0.1 F:2125
R432 33k
R407 1k
R402 10k
R404 0
R409 0
SHP LEVEL
YTBLK
NOISE SLICE
YH CLP
YH IN
YL-YH CLP
YL-YH IN
AGND
CLP4
CLP2
B-LEVEL
B-Y IN
B-Y CLP
R-Y IN
R-Y CLP
DVCC
4FSC
LALT
NC
FSC OUT
BFO
BF
CBLK
CTBLK MODE
CS AGC
CS Y
C OUT
AVCC
C IN
DGND
CHROMA OUT
VIDEO OUT
Y OUT
SETUP CLP
SYNC
SYNC LEVEL
SETUP
FADER 310
FADER MODE
Y LEVEL
SHP OUT
SHP CLP2
BLD
SHP CLP1
BLE
C413 F:2125
C410 0.01
C412 0.01 F
C411 120 6.3 SXE
C409 0.1 F
R411 0
R416 330
Q404 2SC4081
R415 820
C414 27p CH
L401 68μ
R414 0
R437 2200
Q404 (C-8)
3.58MHz BPF
(C-8)
Q403
1/2 ATT
R421 1k
Q403 2SA1576
R420 2200
R419 2200
R418 10k
R417 10k
C419 1000 B
Q402 XN4601
(C-7)
Q402
BUFFER
CL369
CL370
CL371
CL372
CL373
CN307
1 Y OUT
2 GND
3 C OUT
4 FADER
TO VA-68 BOARD W701
(See Page 128)
1 CHASSES GND
CPA301
A1 NC
A2 PG CONT
A3 MODE 8
A4 NC
A5 VAP OUT
A6 TP
A7 WB-G
A8 CAM Y
A9 YH
A10 CAM C
A11 YH OUT1
B1 NC
B2 NC
B3 Y LPF OUT
B4 VSUB
B5 VAP SLICE
B6 CAM ADJ
B7 YH GAIN
B8 YZ GAIN
B9 CCD DED SW
B10 GND
B11 IRIS OUT
CL381
CL382
CL383
CL384
CHECK PIN
C403 0.1 F
C404 F:2125
C406 0.1 F
C407 F:2125
C408 1000p B
R408
A M AGC
B M IRIS
C M IRIS CONT
D AGC CONT R
E AGC CONT F
F M AGC CONT
G REF1
H REF2
I REF3.5
J CAM 4.9V
K HALL OS
L HALL OUT
M IRIS REF
N IRIS CONT
P ZOOM SPEED
Q ZOOM T
R ZOOM W
S FOCUS F
T FOCUS N
U CAM GND
V HALL GAIN
W AF MODE
X AE OFFSET
Y AE IN
TO VC-95 BOARD (2/2)
(See Page 115)
①
②
③
④
⑤

- SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA/DATA	
REC	➡	➾		
PB				

no mark : CAMERA REC mode

VC-95 BOARD (1/2)

VC-95 (CAMERA LENS DRIVE), AF BOARD (CAMERA LENS DRIVE) PRINTED WIRING BOARDS

— Ref. No. VC-95 BOARD: 6000 series —

AF board is replaced as a block, so that the PRINTED WIRING BOARD of it is omitted.

A-7062-711-A VC-95 BOARD COMPLETE
****

〈 DIODE 〉

D501	8-719-404-46	DIODE	MA110
D502	8-719-404-46	DIODE	MA110
D503	8-719-404-46	DIODE	MA110
D504	8-719-404-46	DIODE	MA110
D651	8-719-976-90	DIODE	DTZ4. 3A

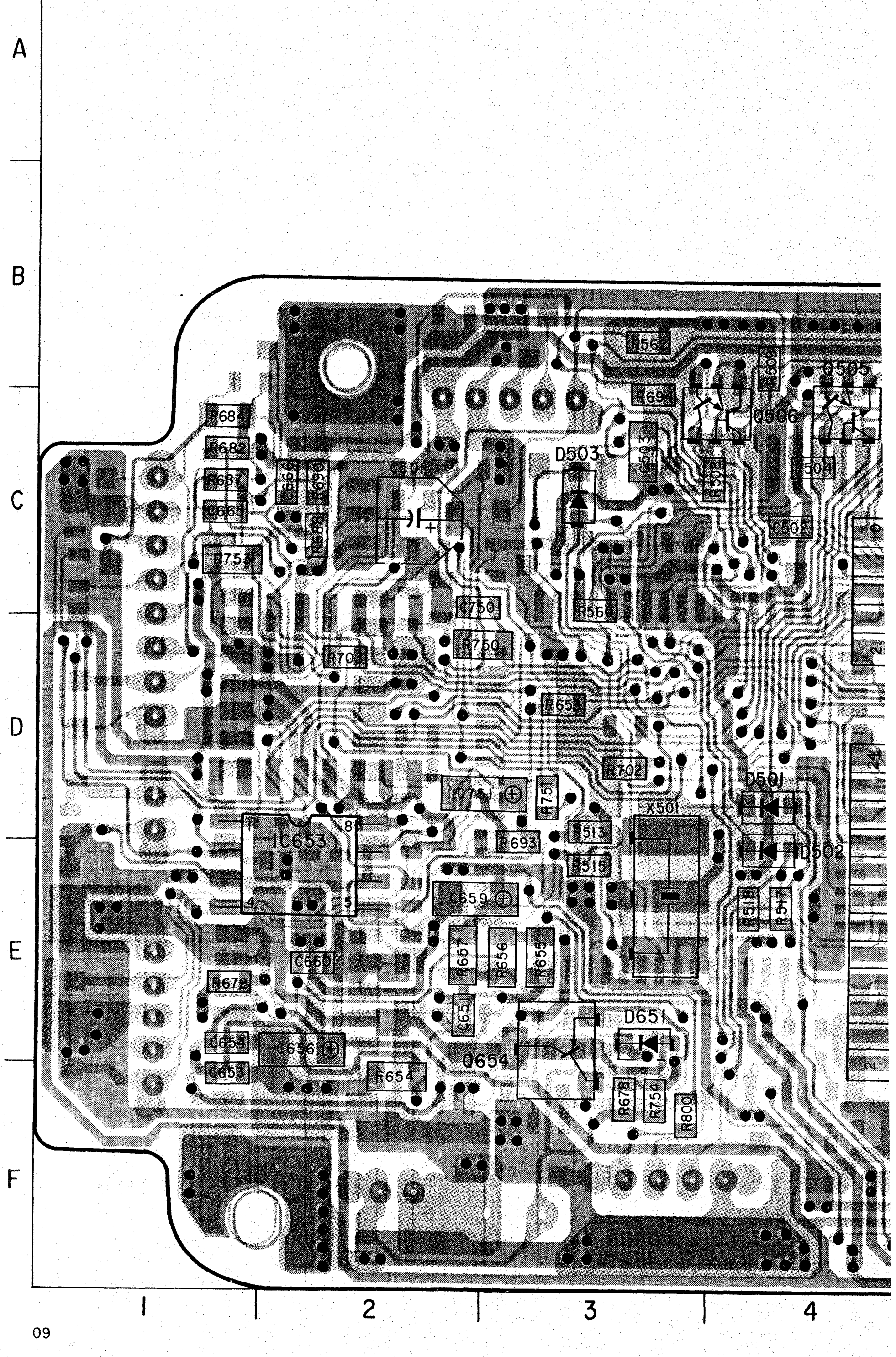
〈 IC 〉

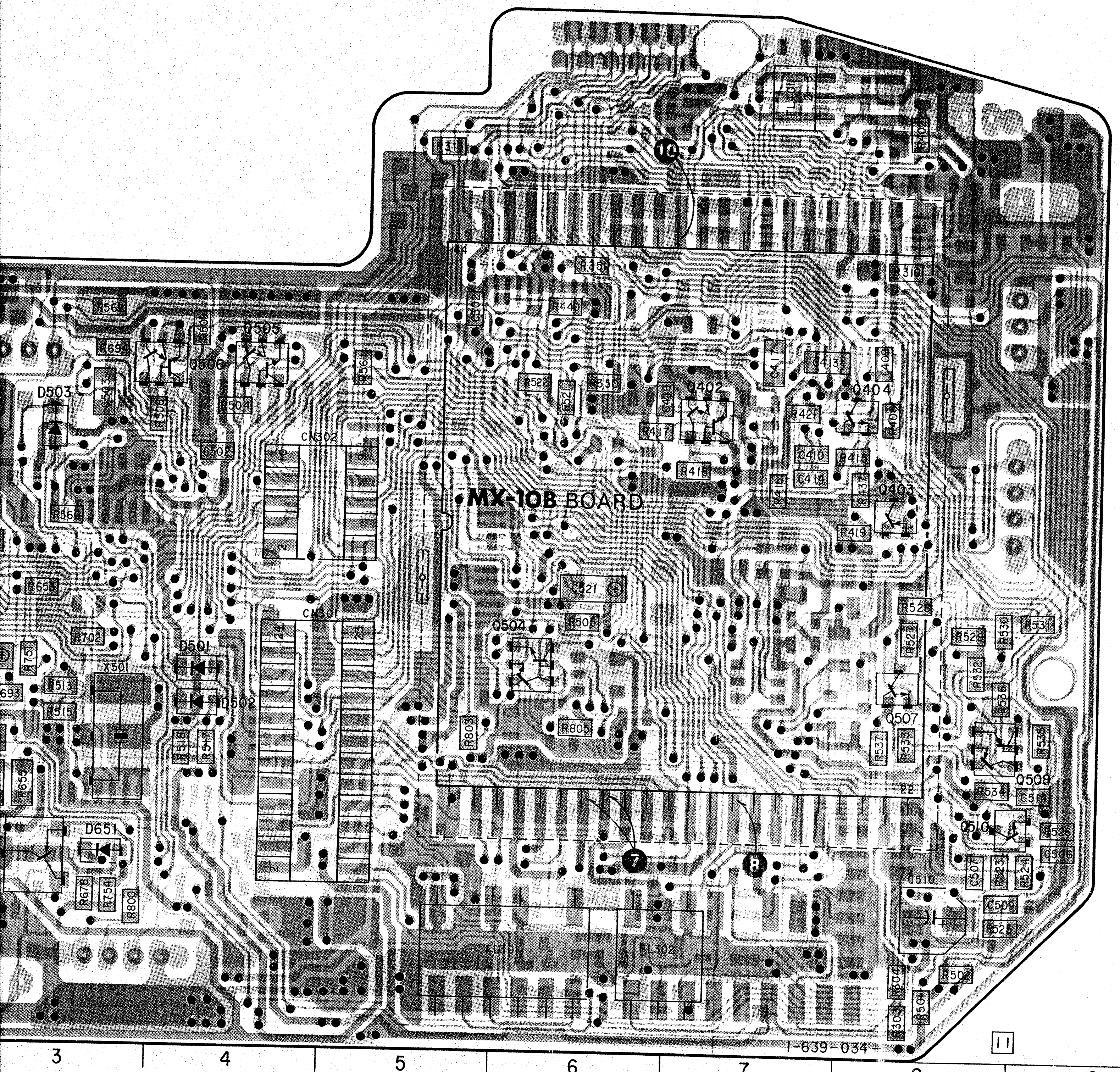
IC301	8-759-635-27	IC	M62352GP
IC401	8-752-038-XX	IC	CXA1392R
IC501	8-759-038-85	IC	MC68HC11E9FU-SC400226
IC504	8-759-635-27	IC	M62352GP
IC508	8-759-937-56	IC	S-8054ALB-LM
IC509	8-759-509-05	IC	XRU4066BF
IC510	8-759-998-96	IC	LM324DR
IC651	8-759-981-82	IC	RC3414M
IC652	8-759-998-96	IC	LM324DR
IC653	8-759-500-11	IC	MM1036XFF
IC656	8-759-998-96	IC	LM324DR-E1

〈 TRANSISTOR 〉

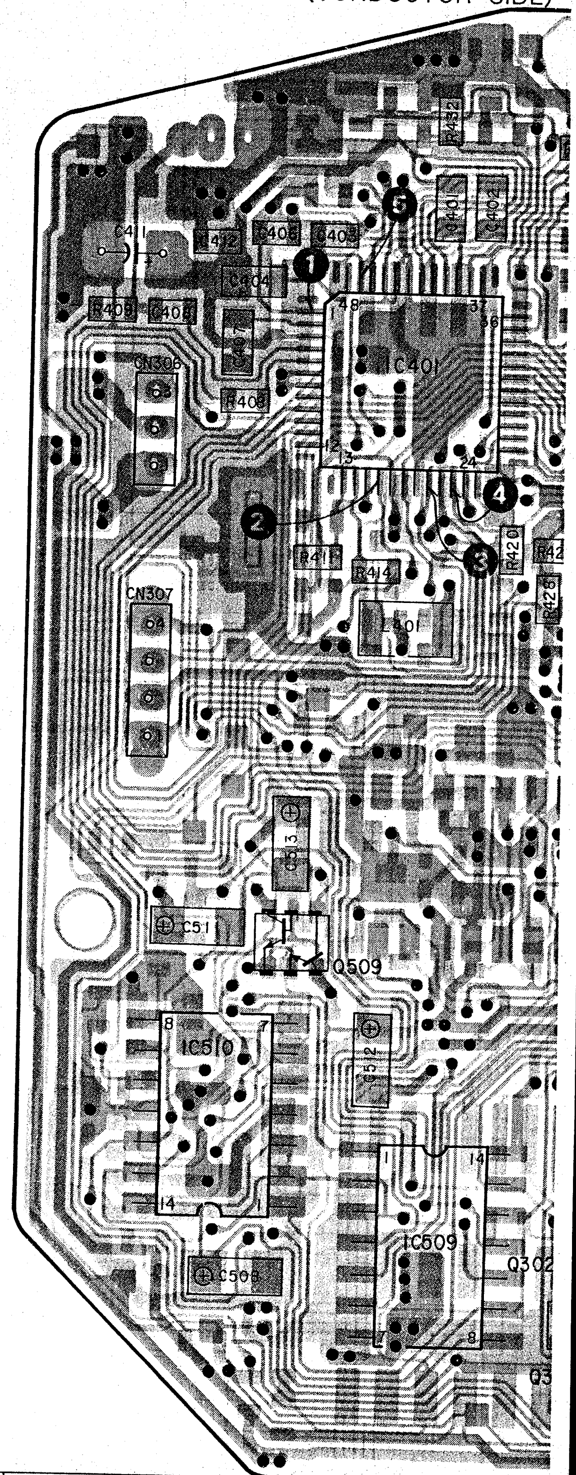
Q301	8-729-905-23	TRANSISTOR	2SA1576
Q302	8-729-905-23	TRANSISTOR	2SA1576
Q303	8-729-907-47	TRANSISTOR	IMZ1T108
Q402	8-729-907-47	TRANSISTOR	IMZ1T108
Q403	8-729-905-23	TRANSISTOR	2SA1576
Q404	8-729-905-35	TRANSISTOR	2SC4081
Q504	8-729-925-39	TRANSISTOR	IMH8
Q505	8-729-925-39	TRANSISTOR	IMH8
Q506	8-729-925-77	TRANSISTOR	IMH6
Q507	8-729-420-50	TRANSISTOR	UN5215
Q508	8-729-402-78	TRANSISTOR	XN6401
Q509	8-729-925-39	TRANSISTOR	IMH8
Q510	8-729-905-35	TRANSISTOR	2SC4081
Q513	8-729-907-47	TRANSISTOR	IMZ1T108
Q516	8-729-905-35	TRANSISTOR	2SC4081
Q652	8-729-402-42	TRANSISTOR	UN5213
Q653	8-729-905-23	TRANSISTOR	2SA1576
Q654	8-729-106-60	TRANSISTOR	2SB1115A
Q655	8-729-905-35	TRANSISTOR	2SC4081
Q656	8-729-821-88	TRANSISTOR	2SK1332-3

VC-95 BOARD (COMPONENT SIDE)



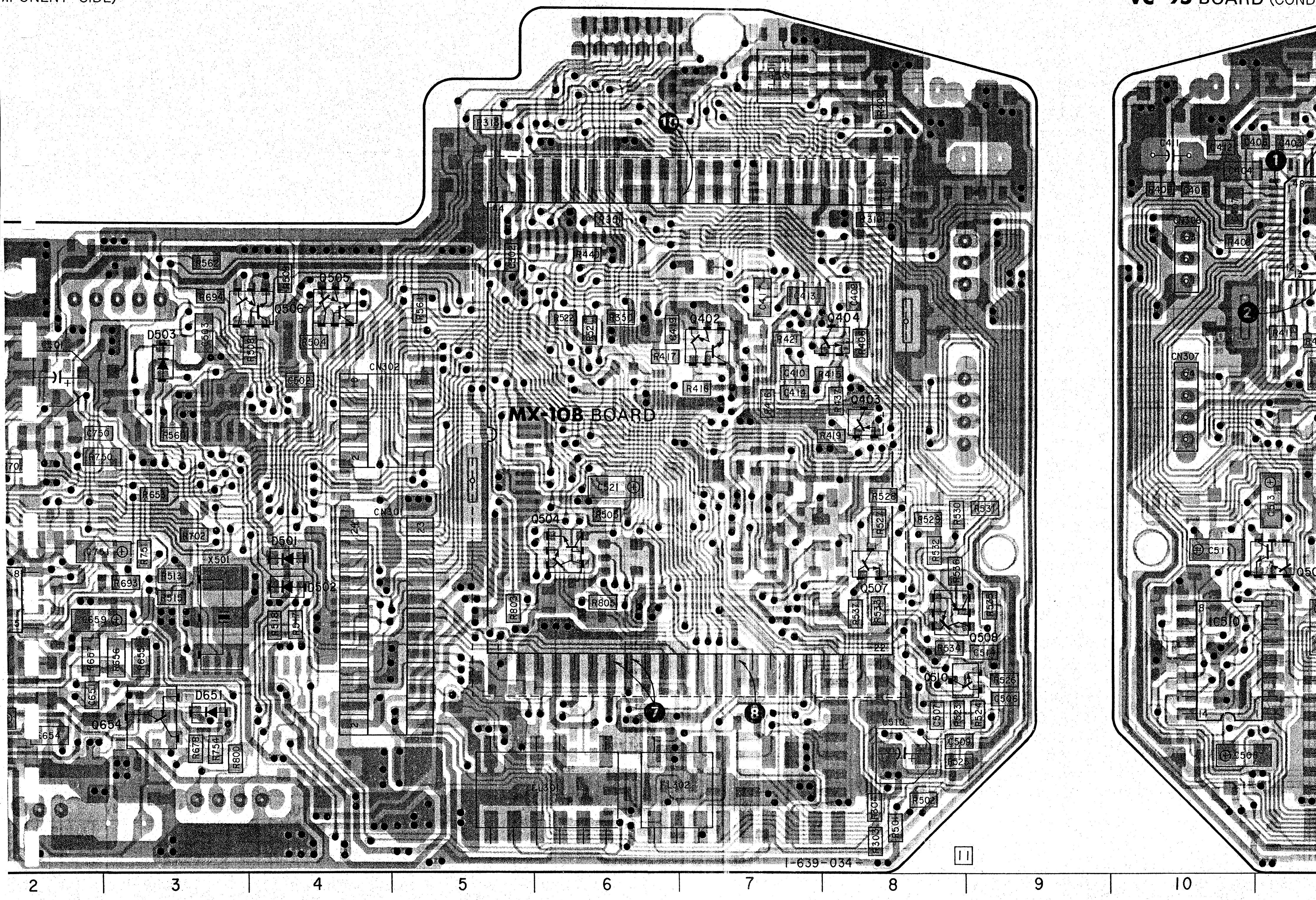

MX-10B BOARD
1-639-034-
11
3
4
5
6
7
8
9
CN301
CN302
X501
D501
D502
D503
D651
Q402
Q403
Q404
Q504
Q505
Q506
Q507
Q508
Q510
C410
C413
C414
C417
C501
C502
C503
C509
C510
C513
C521
R350
R351
R409
R412
R413
R415
R416
R417
R418
R419
R421
R440
R505
R508
R511
R513
R514
R515
R518
R521
R522
R523
R524
R525
R526
R527
R528
R529
R530
R531
R532
R533
R534
R535
R536
R537
R561
R562
R566
R653
R655
R678
R694
R702
R751
R756
R800
R803
R805
R311
R312
FL301
FL302

VC-95 BOARD (CONDUCTOR SIDE)


10
11
CN306
CN307
IC401
IC501
IC509
IC510
Q302
Q509
C401
C404
C406
C408
C411
C506
C511
C512
C513
R406
R408
R409
R410
R411
R412
R414
R420

PONENT SIDE)

VC-95 BOARD (COND



MX-10B BOARD
CN301
CN302
IC301
IC302
X501
D501
D502
D503
D651
Q402
Q403
Q404
Q504
Q505
Q506
Q507
Q509
Q510
Q654
C413
C417
C418
C410
C521
C750
C751
C659
C510
C508
C509
C507
C411
C511
C506
R318
R319
R340
R350
R361
R440
R413
R415
R416
R417
R421
R502
R503
R504
R505
R506
R508
R513
R515
R518
R522
R525
R526
R527
R528
R529
R530
R531
R532
R533
R534
R537
R560
R562
R566
R654
R655
R656
R657
R678
R693
R694
R702
R750
R751
R754
R800
R802
R805
R406
R407
R409
R410
R411
Q308
CN307
IC510
1-639-034
11
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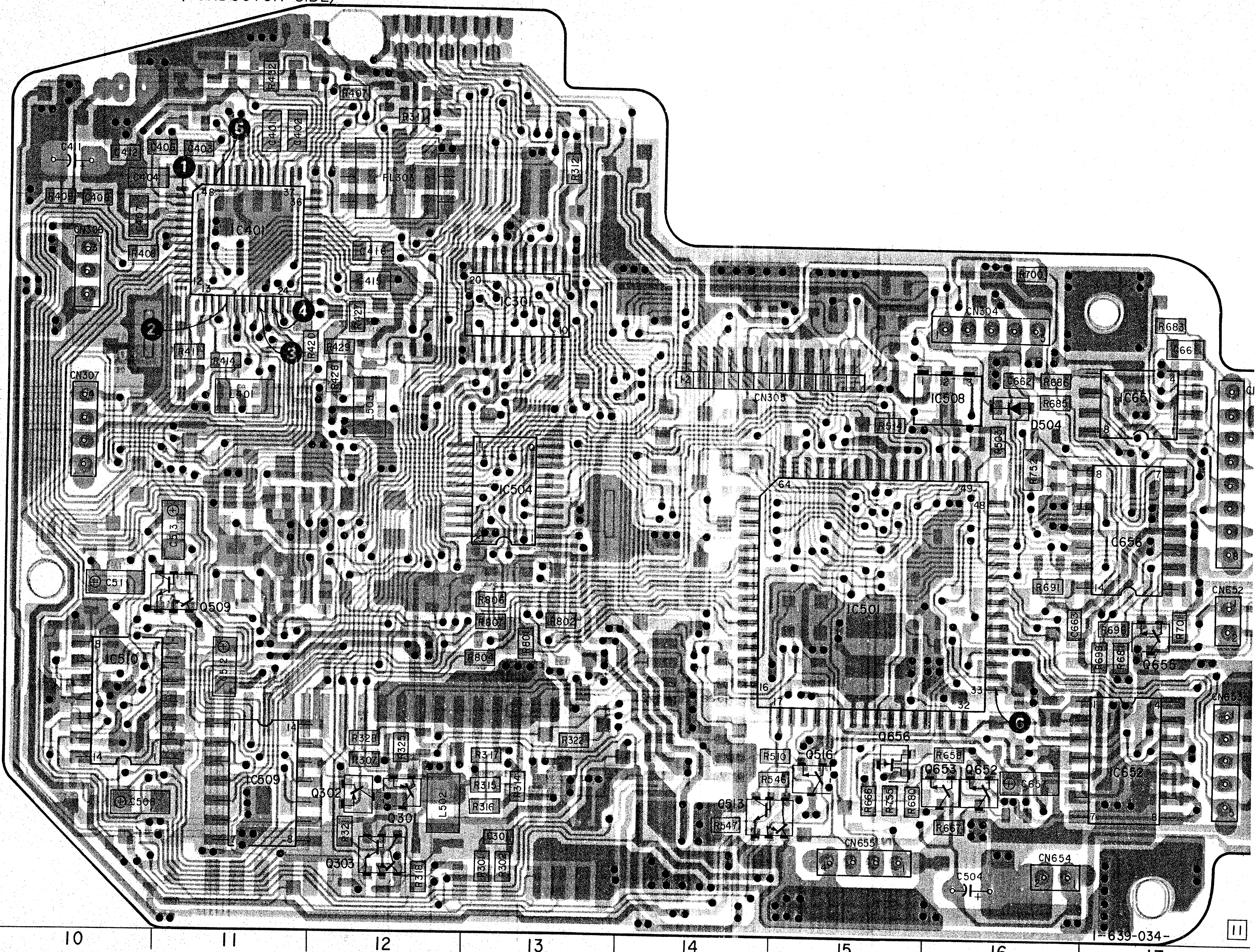
VC-95 BOARD (CONDUCTOR SIDE)



C411
R412
R406
R403
C404
R405
C408
CN308
R408
IC401
48
37
36
12
13
24
R417
R414
L501
CN307
R452
R407
R311
C401
C402
FL302
R312
R416
R415
R427
R429
R420
R428
L503
20
IC301
IC504
R806
R807
R802
R808
R801
C511
Q509
C513
IC510
C512
IC509
R328
R307
R329
R317
R315
R316
R314
R322
Q302
Q301
L502
Q303
R321
R318
R309
R308
R304
R700
CN304
CN305
IC508
R514
C662
R686
R685
D504
R683
R661
IC651
IC501
64
49
48
17
16
33
32
R691
IC656
C665
R695
R69
R701
R696
Q658
CN652
CN653
IC652
R510
Q516
R546
Q656
R658
Q653
Q652
Q513
R547
R668
R750
R650
R657
CN655
C504
CN654
1-639-034-
11
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11
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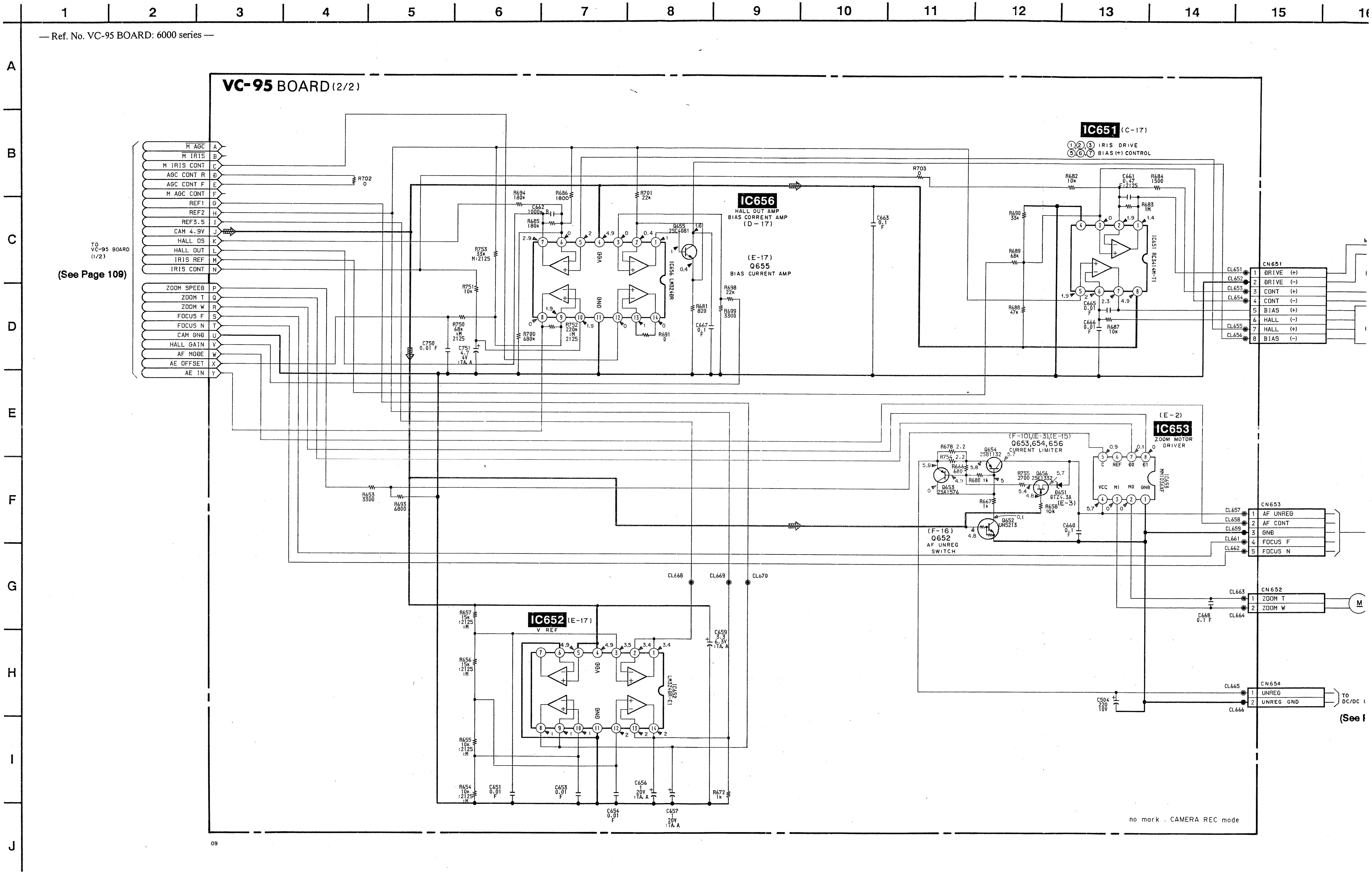
16
17

VC-95 (CAMERA LENS DRIVE), AF BOARD (CAMERA LENS DRIVE) SCHEMATIC DIAGRAMS


— Ref. No. VC-95 BOARD: 6000 series —

1
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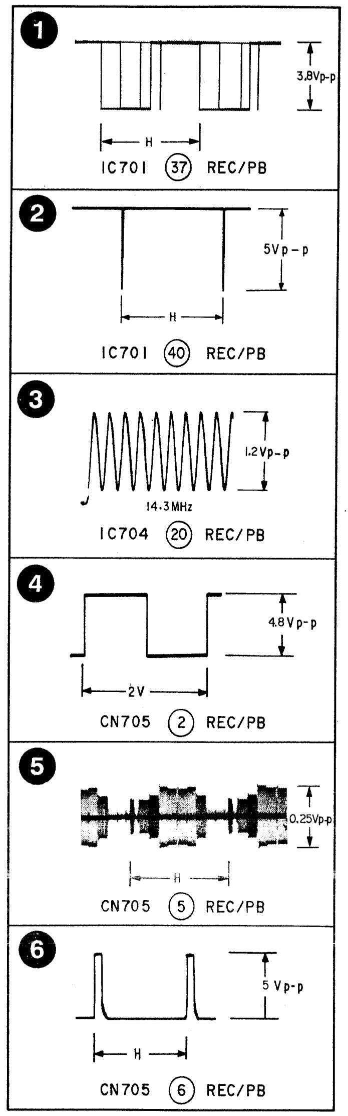
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
VC-95 BOARD (2/2)
TO VC-95 BOARD (1/2)
(See Page 109)
M AGC A
M IRIS B
M IRIS CONT C
AGC CONT R D
AGC CONT F E
M AGC CONT F
REF1 G
REF2 H
REF3.5 I
CAM 4.9V J
HALL OS K
HALL OUT L
IRIS REF M
IRIS CONT N
ZOOM SPEED P
ZOOM T Q
ZOOM W R
FOCUS F S
FOCUS N T
CAM GND U
HALL GAIN V
AF MODE W
AE OFFSET X
AE IN Y
R702 0
IC656
HALL OUT AMP
BIAS CORRENT AMP
(D-17)
IC656 LM324DR
Q655 2SC4081
(E-17)
Q655
BIAS CURRENT AMP
R694 180k
R686 1800
R685 180k
C662 1000p
R701 22k
R753 33k M:2125
R751 10k
R750 68k :M 2125
C750 0.01 F
C751 4.7 4V :TA A
R700 680k
R752 220k :M 2125
R681 820
C667 0.1 F
R698 22k
R699 3300
R691 0
C663 0.1 F
R703 0
IC651 (C-17)
①②③ IRIS DRIVE
⑤⑥⑦ BIAS (+) CONTROL
IC651 RC3414M-T1
R682 10k
C661 0.47 F:2125
R684 1500
R683 1M
R690 33k
R689 68k
R688 47k
C665 0.01 F
C666 0.01 F
R687 10k
CN651
1 DRIVE (+)
2 DRIVE (-)
3 CONT (+)
4 CONT (-)
5 BIAS (+)
6 HALL (-)
7 HALL (+)
8 BIAS (-)
CL651
CL652
CL653
CL654
CL655
CL656
(E-2)
IC653
ZOOM MOTOR DRIVER
IC653 MN6563F
C REF 00 01
VCC MI MO GND
(F-10),(E-3),(E-15)
Q653,654,656
CURRENT LIMITER
R678 2.2
R754 2.2
Q654 2SB1132
R666 680
R680 1k
Q653 2SA1576
R755 2700
Q656 2SC1332
D651 BTZ4.3A (E-3)
R667 1k
R658 10k
Q652 UN5213
(F-16)
Q652
AF UNREG SWITCH
C660 0.1 F
R653 3300
R693 6800
CN653
1 AF UNREG
2 AF CONT
3 GND
4 FOCUS F
5 FOCUS N
CL657
CL658
CL659
CL661
CL662
CL668
CL669
CL670
CN652
1 ZOOM T
2 ZOOM W
CL663
CL664
C668 0.1 F
M
CN654
1 UNREG
2 UNREG GND
CL665
CL666
C504 220 10V
TO DC/DC
(See
IC652 (E-17)
V REF
IC652 LM324MR-E1
VDD
GND
R657 15k :2125 :M
R656 15k :2125 :M
R655 10k :2125 :M
R654 10k :2125 :M
C651 0.01 F
C653 0.01 F
C654 0.01 F
C656 1 20V :TA A
C657 1 20V :TA A
C659 3.3 6.3V :TA A
R672 1k
no mark . CAMERA REC mode
09

CT-39 BOARD

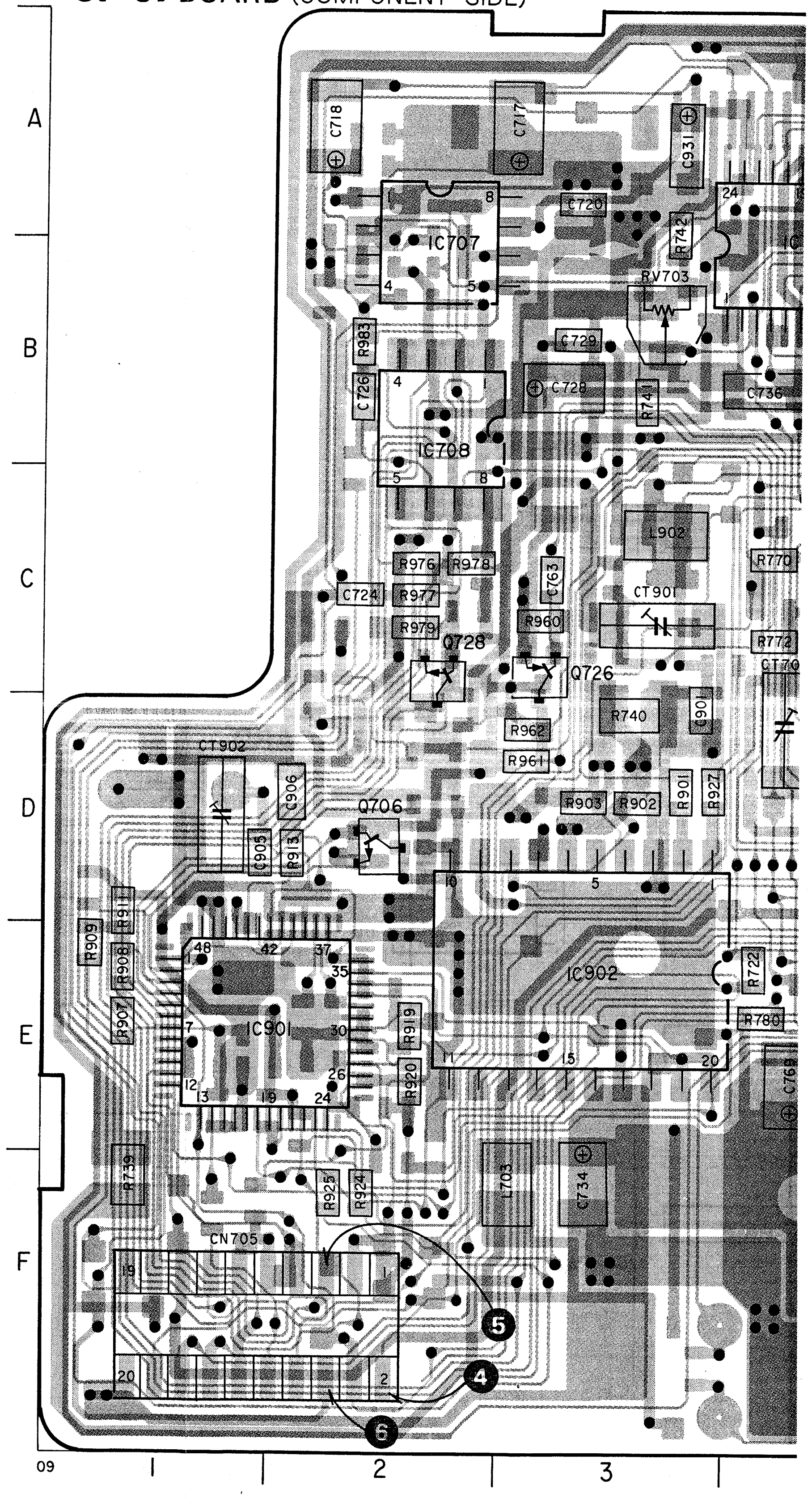


* A-7062-714-A CT-39 BOARD, COMPLETE
****

		(DIODE)	
D901	8-719-949-46	DIODE	1T32
D903	8-719-404-46	DIODE	MA110
D904	8-719-404-46	DIODE	MA110
D905	8-719-404-46	DIODE	MA110
D906	8-719-404-46	DIODE	MA110
		(IC)	
IC701	8-759-998-30	IC	CF79028PG
IC702	8-759-979-96	IC	8464A-15LLPF
IC703	8-752-039-49	IC	CXA1393AN
IC704	8-759-634-47	IC	M51285BGP
IC707	8-759-710-29	IC	NJM2235M
IC708	8-759-710-09	IC	NJM2233AM
IC709	8-759-710-09	IC	NJM2233AM
IC713	8-759-234-20	IC	TC7S08F
IC901	8-759-970-80	IC	MB673198U
IC902	8-759-153-41	IC	uPD6451AGT-611-E1
		(TRANSISTOR)	
Q701	8-729-925-91	TRANSISTOR	DTC115EU
Q702	8-729-907-03	TRANSISTOR	FMG5
Q703	8-729-905-18	TRANSISTOR	DTC144EU
Q704	8-729-905-35	TRANSISTOR	2SC4081R
Q705	8-729-905-24	TRANSISTOR	2SA1576T106S
Q706	8-729-905-18	TRANSISTOR	DTC144EU
Q707	8-729-905-35	TRANSISTOR	2SC4081R
Q708	8-729-905-15	TRANSISTOR	DTC144WU
Q709	8-729-905-35	TRANSISTOR	2SC4081R
Q710	8-729-905-35	TRANSISTOR	2SC4081R
Q720	8-729-905-18	TRANSISTOR	DTC144EU
Q726	8-729-905-23	TRANSISTOR	2SA1576R
Q727	8-729-905-35	TRANSISTOR	2SC4081R
Q728	8-729-905-35	TRANSISTOR	2SC4081R
Q729	8-729-905-18	TRANSISTOR	DTC144EU
Q730	8-729-905-12	TRANSISTOR	DTA144EU
Q800	8-729-905-18	TRANSISTOR	DTC144EU
Q801	8-729-905-23	TRANSISTOR	2SA1576R

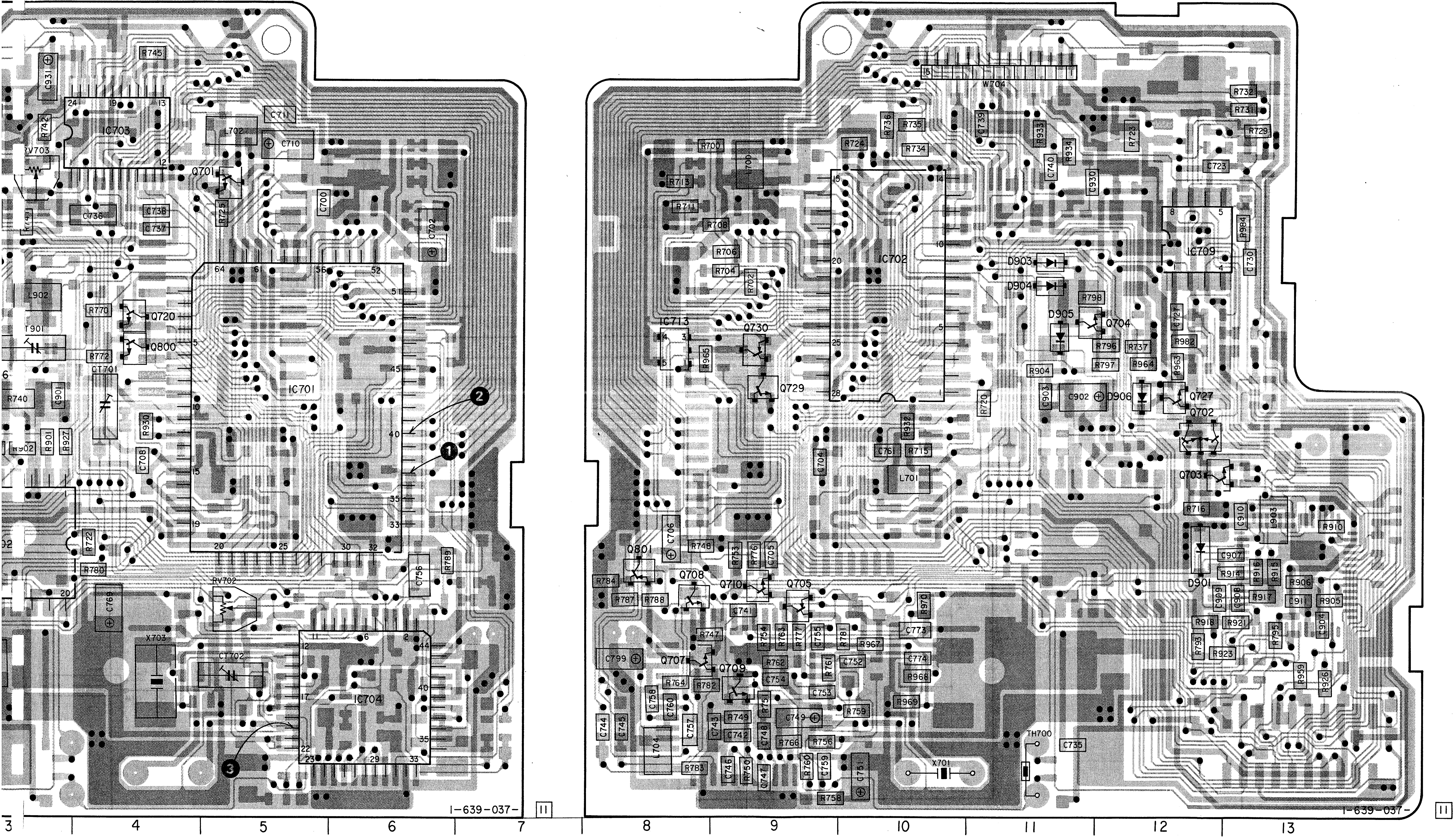
CT-39 (TITLER PROCESS) PRINTED WIRING BOARD

CT-39 BOARD (COMPONENT SIDE)


A
B
C
D
E
F
09
1
2
3
C718
C717
C931
C720
IC707
R742
RV703
C729
C728
C736
R983
C726
R741
IC708
L902
R976
R978
C763
R770
C724
R977
CT901
R960
R979
Q728
R772
Q726
CT770
R740
C901
R962
CT902
C906
R961
Q706
R903
R902
R901
R927
C905
R913
R909
R911
R908
IC901
IC902
R722
R907
R919
R780
R920
C768
R739
R925
R924
L703
C734
CN705
5
4
6

TITLE TITLE

CT-39 BOARD (CONDUCTOR SIDE)


R745
C931
IC703
24
19
13
12
R742
RV703
L702
C711
C710
Q701
R725
C736
C738
C737
C700
C702
L902
R770
Q720
Q800
T901
R772
CT701
R740
C901
R930
R901
R927
R902
C708
IC701
64
61
56
52
51
45
40
35
33
32
30
25
20
19
15
10
5
R722
R780
20
C769
RV702
C756
R789
X703
CT702
IC704
12
11
6
2
44
40
35
33
29
23
22
17
1-639-037-
11
W704
15
R700
L700
R713
R711
R708
R706
R704
R702
IC713
R966
Q730
Q729
R736
R735
R734
R724
C739
IC702
14
15
10
20
25
28
5
R933
R934
C740
C930
R723
R732
R731
R729
C723
IC709
8
5
4
R984
C730
D903
D904
D905
R798
Q704
R796
R797
R737
C727
R982
R964
R963
R904
C903
C902
D906
Q727
Q702
R720
R932
C761
R715
L701
C704
Q703
R716
C910
R903
R910
C706
R748
Q801
R753
R776
C705
R784
R787
R788
Q708
Q710
Q705
C741
R970
R747
R754
R763
R777
C755
R781
R967
C773
C774
R968
R969
C799
Q707
Q709
R762
R764
R782
C754
R761
C752
C753
R759
C758
C760
C744
C745
C757
C743
R749
C742
C748
R751
C749
R766
R756
L704
R783
C746
R750
C747
R760
C759
C751
R758
X701
TH700
C735
C907
R914
R916
R915
R906
C909
C908
R917
C911
R905
D901
R918
R921
R793
R923
R795
C904
R959
R926
1-639-037-
11
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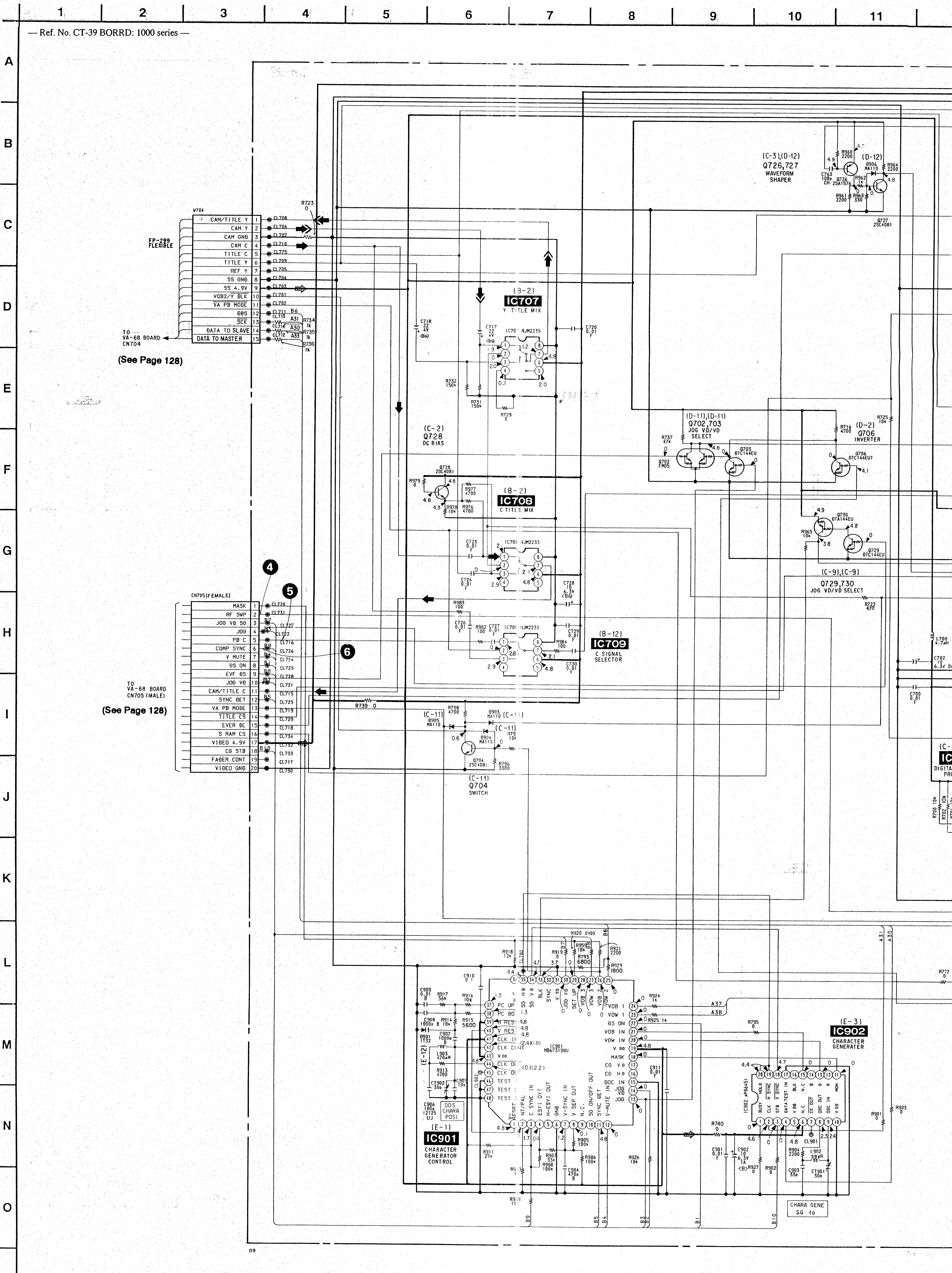
13

CT-39 (TITLER PROCESS) SCHEMATIC DIAGRAM

— Ref. No. CT-39 BORRD: 1000 series —



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A
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C
D
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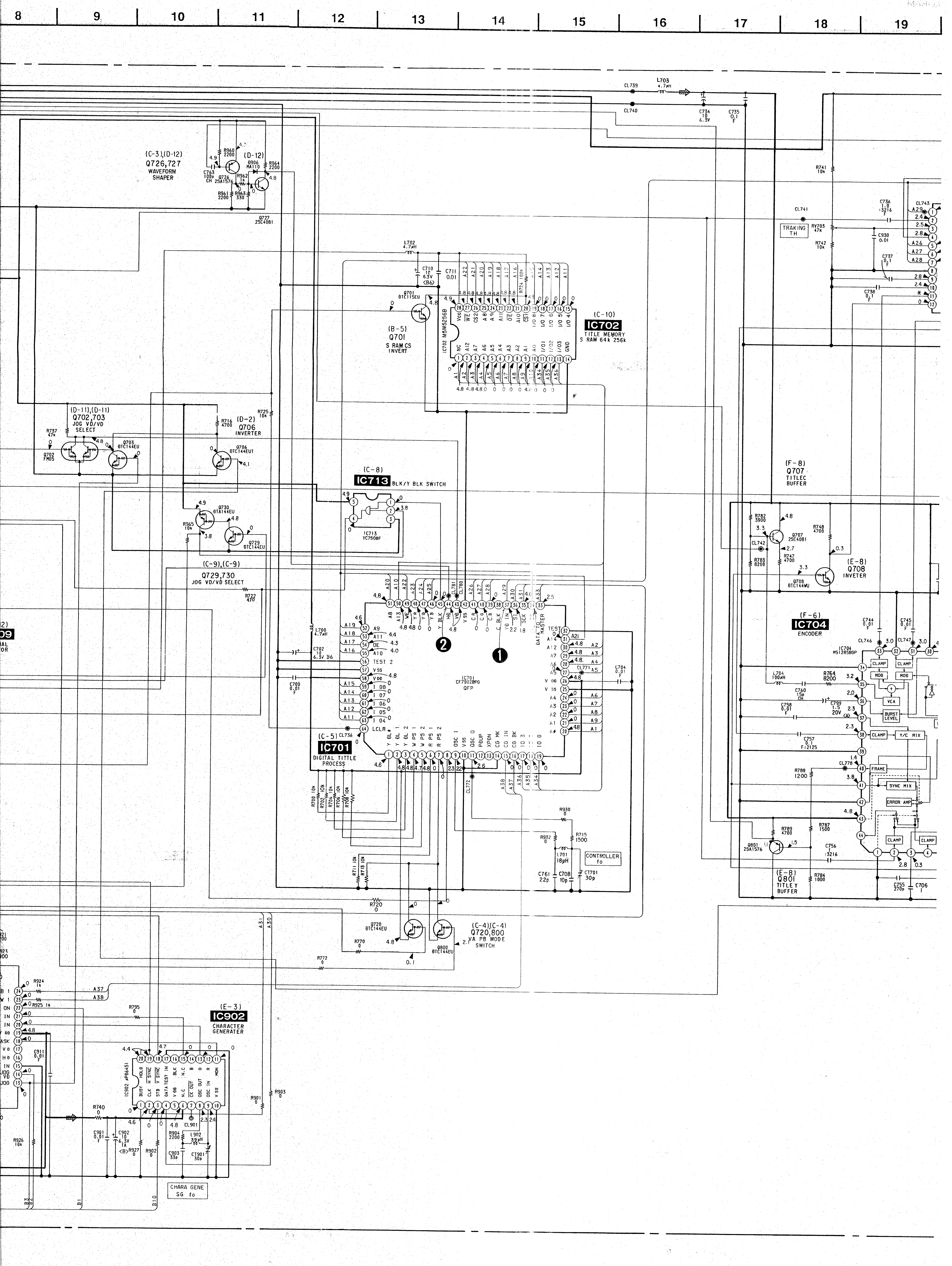
G
H
I
J
K
L
M
N
O
W704
CAM/TITLE Y
CAM Y
CAM GND
CAM C
TITLE C
TITLE Y
REF Y
SS GND
SS 4.9V
VOB2/Y BLK
VA PB MODE
DBS
SCK
DATA TO SLAVE
DATA TO MASTER
FP-299 FLEXIBLE
TO VA-68 BOARD CN704
(See Page 128)
R723 0
(B-2)
IC707
Y TITLE MIX
IC707 NJM2235
C717 22 4V
C718 22 4V
C720 0.01
R732 150k
R731 150k
R729 0
(C-2)
Q728
DC BIAS
Q728 2SC4081
R979 0
R977 4700
R978 10k
R976 4700
(B-2)
IC708
C TITLE MIX
IC708 NJM2233
C723 0.01
C724 0.01
C728 10 6.3V
R983 100
C726 0.01
R982 100
C727 0.01
IC709 NJM2233
R984 100
C729 0.01
C730 0.01
(B-12)
IC709
C SIGNAL SELECTOR
CN705 (FEMALE)
MASK
RF SWP
JOG VD SG
JOG
PB C
COMP SYNC
V MUTE
DS ON
EVF DS
JOG VD
CAM/TITLE C
SYNC DET
VA PB MODE
TITLE CS
EVER DC
S RAM CS
VIDEO 4.9V
CG STB
FADER CONT
VIDEO GND
TO VA-68 BOARD CN705 (MALE)
(See Page 128)
R739 0
R798 4700
D903 MA110 (C-11)
(C-11) D905 MA110
D904 MA110
Q704 2SC4081
R796 3300
(C-11)
Q704
SWITCH
(C-3),(D-12)
Q726,727
WAVEFORM SHAPER
R960 2200
(D-12)
D906 MA110
R964 2200
C763 100p CH
Q726 2SA1576
R962 1k
R961 2200
R963 330
Q727 2SC4081
(D-11),(D-11)
Q702,703
JOG VD/VD SELECT
R737 47k
Q702 FM05
Q703 DTC144EU
R716 4700
(D-2)
Q706
INVERTER
R725 10k
Q706 DTC144EUT
Q730 DTA144EU
R965 10k
Q729 DTC144EU
(C-9),(C-9)
Q729,730
JOG VD/VD SELECT
R722 470
L700 4.7μH
C702 10 6.3V
C700 0.01
DIGITA
R700 10k
R920 3900
R921 2200
R918 12k
R919 0
R959 18k
R793 6800
R923 1800
C910 0.1
C909 0.01
R917 56k
R916 10k
R915 5600
C908 1000p
R914 10k
D901 1T32
C907 1000p
L903 470μH
R913 4700
C902 30p
C905 10p
C906 180p
DDS CHARA POSI
(E-12)
(E-1)
IC901
CHARACTER GENERATOR CONTROL
IC901 MB67319BU
PC UP
PC DO
H RES
V RES
CLK IN
CLK CONT
V DD
CLK DI
CLK DO
TEST
SG H
SG V
BLK
SYNC
V SS
JOG VD
SET UP
VOB 3
VOW 3
VOB 2
VOW 2
VOB 1
VOW 1
DS ON
VOB IN
VOW IN
V DD
MASK
CG V D
CG H D
DDC IN
JOG VD
JOG
NT/PAL
C SYNC IN
ESYI OUT
H-ESYI OUT
GND
V-SYNC IN
V SEP OUT
N.C.
SG ON/OFF OUT
SYNC DET
V-MUTE IN
R911 27k
R907 33k
R908 100k
R905 100k
R906 100k
C904 470p
R926 10k
R924 1k
R925 1k
A37
A38
R795 0
R740 0
C901 0.01
C902 10 6.3V
R927 0
R902 0
C903 33p
R904 2200
CL901
L902 39μH
C1901 30p
(E-3)
IC902
CHARACTER GENERATER
IC902 μPD6451
HOLD
H SYNC
V SYNC
DATA TEST IN
BUSY
CLK
STB
V DD
N.C
CK OUT
OSC OUT
OSC IN
V SS
MON
R901 0
R903 0
CHARA GENE SG fo
R772 0
A31
A30
A33
R734 1k
R735 1k
R736 1k
B1
B3
B4
B5
B6
B7
B9
B10
09


8
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14
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16
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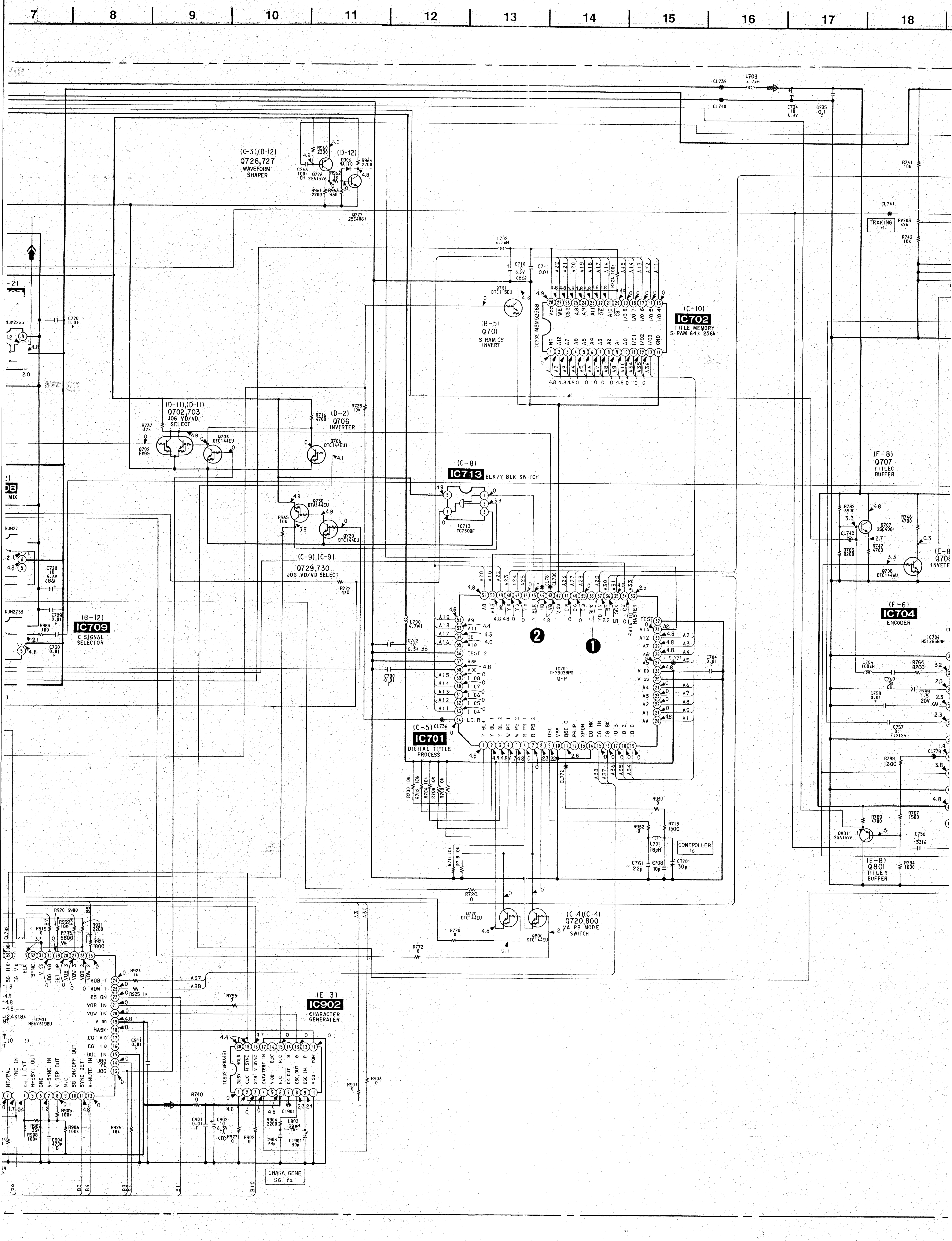
18
19
(C-3),(D-12)
Q726,727
WAVEFORM
SHAPER
Q727 2SC4081
Q726 2SA1576
D906 MA110
(D-11),(D-11)
Q702,703
JOG VD/VD
SELECT
Q702 FMG5
Q703 DTC144EU
(D-2)
Q706
INVERTER
Q706 DTC144EUT
(B-5)
Q701
S RAM CS
INVERT
Q701 DTC115EU
(C-10)
IC702
TITLE MEMORY
S RAM 64k 256k
IC702 M5M5256B
(C-8)
IC713
BLK/Y BLK SWITCH
IC713 TC7S08F
(C-9),(C-9)
Q729,730
JOG VD/VD SELECT
Q730 DTA144EU
Q729 DTC144EU
(C-5)
IC701
DIGITAL TITTLE
PROCESS
IC701 CF79028PG QFP
❶
❷
(C-4),(C-4)
Q720,800
VA PB MODE
SWITCH
Q720 DTC144EU
Q800 DTC144EU
CONTROLLER fo
(E-3)
IC902
CHARACTER
GENERATOR
IC902 µPD6451
CHARA GENE SG fo
TRAKING TH
RV703 47k
(F-8)
Q707
TITLEC
BUFFER
Q707 2SC4081
(E-8)
Q708
INVETER
Q708 DTC144WU
(F-6)
IC704
ENCODER
IC704 M51285BGP
CLAMP
MOD
VCA
BURST LEVEL
Y/C MIX
FRAME
SYNC MIX
ERROR AMP
(E-8)
Q801
TITLE Y
BUFFER
Q801 2SA1576
L703 4.7µH
L702 4.7µH
L700 4.7µH
L701 18µH
L704 100µH
L902 39µH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13
14
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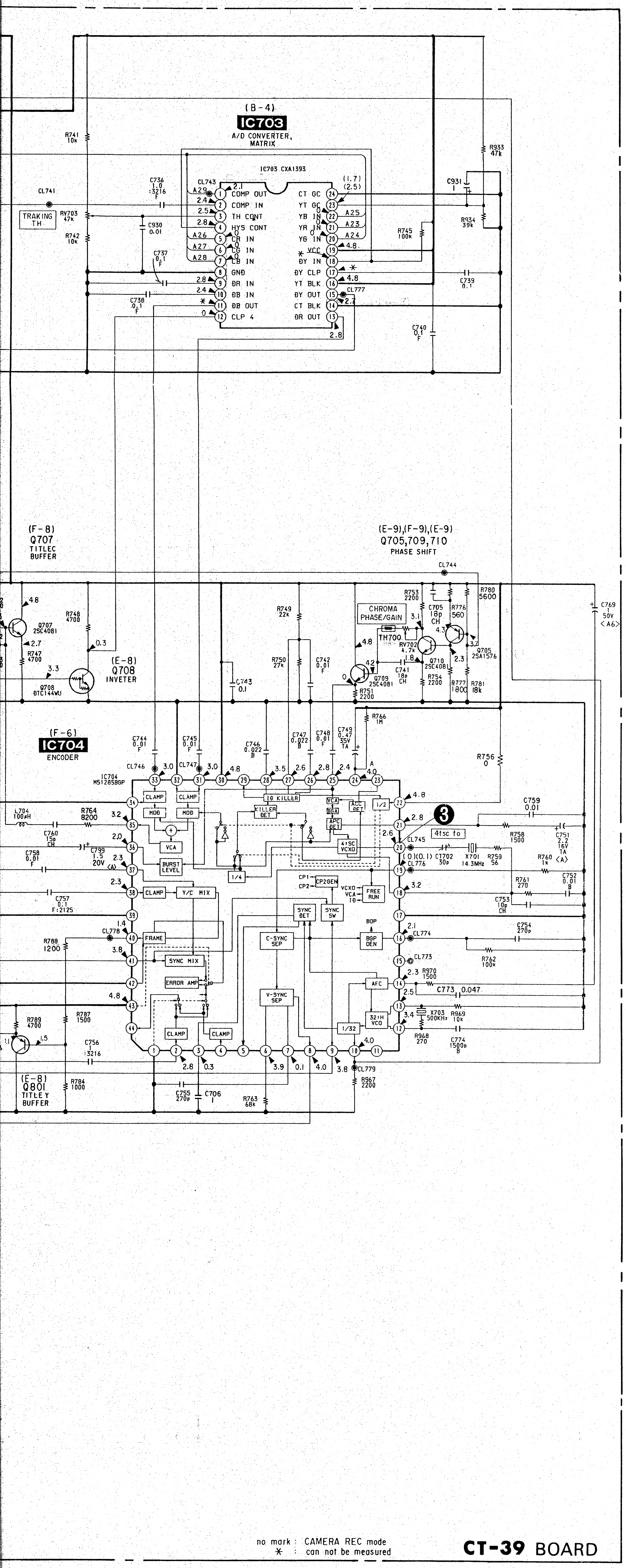
17
18
(C-3),(D-12)
Q726,727
WAVEFORM SHAPER
(D-12)
Q727 2SC4081
R960 2200
R964 2200
D906 MA110
C763 100p CH
Q726 2SA1576
R962 1k
R961 2200
R963 330
CL739
L703 4.7μH
CL740
C734 10 6.3V
C735 0.1 F
R741 10k
CL741
TRAKING TH
RV703 47k
R742 10k
L702 4.7μH
C710 10 6.3V (B6)
C711 0.01
Q701 DTC115EU
(B-5)
Q701
S RAM CS INVERT
(C-10)
IC702
TITLE MEMORY S RAM 64k 256k
IC702 M5M5256B
R724 100k
(D-11),(D-11)
Q702,703
JOG VD/VD SELECT
R737 47k
Q702 FM05
Q703 DTC144EU
R716 4700
(D-2)
Q706
INVERTER
Q706 DTC144EUT
R725 10k
(C-8)
IC713
BLK/Y BLK SWITCH
IC713 TC7S08F
Q730 DTA144EU
R965 10k
Q729 DTC144EU
(C-9),(C-9)
Q729,730
JOG VD/VD SELECT
R722 470
(B-12)
IC709
C SIGNAL SELECTOR
C720 0.01 F
C728 10 6.3V <B6>
C729 0.01 F
R984 100
C730 0.01 F
MIX
L700 4.7μH
C702 10 6.3V B6
C700 0.01 F
IC701 CF79028PG QFP
(C-5)
IC701
DIGITAL TITTLE PROCESS
CL736
CL780
CL781
CL771
CL772
C704 0.01 F
R700 10k
R702 10k
R704 10k
R706 10k
R708 10k
R711 10k
R713 10k
R720 0
R930 0
R932 0
R715 1500
L701 18μH
CONTROLLER fo
C761 22p
C708 10p
CT701 30p
Q720 DTC144EU
Q800 DTC144EU
R770 0
R772 0
(C-4)(C-4)
Q720,800
VA PB MODE SWITCH
(F-8)
Q707
TITLEC BUFFER
R782 3900
CL742
Q707 2SC4081
R748 4700
R747 4700
R783 8200
Q708 DTC144WU
(E-8)
Q708
INVETE
(F-6)
IC704
ENCODER
IC704 M51285BGP
L704 100μH
R764 8200
C760 15p CH
C758 0.01 F
C799 1.5 20V
C757 0.1 F:2125
CL778
R768 1200
R789 4700
R787 1500
Q801 2SA1576
C756 :3216
R784 1000
(E-8)
Q801
TITLEY BUFFER
R920 3900
R919 0
R955 18k
R793 6800
R921 2200
R923 1800
R924 1k
R925 1k
R795 0
IC901 MB673198U
A37
A38
(E-3)
IC902
CHARACTER GENERATER
IC902 μPD6451
C911 0.01 F
R740 0
C901 0.01 F
C902 10 6.3V TA <B>
R927 0
R902 0
R904 2200
L902 39μH
CL901
C903 33p
CT901 30p
R901 0
R903 0
R905 100k
R906 100k
R907 33k
R908 100k
C904 470p B
R926 10k
CHARA GENE SG fo
A31
A30
B5
B4
B3
B2
B1
B10
1
2


(B-4)
IC703
A/D CONVERTER, MATRIX
IC703 CXA1393
COMP OUT
COMP IN
TH CONT
HYS CONT
CR IN
CG IN
CB IN
GND
DR IN
DB IN
DB OUT
CLP 4
CT GC
YT GC
YB IN
YR IN
YG IN
VCC
DY IN
DY CLP
YT BLK
DY OUT
CT BLK
DR OUT
TRAKING TH
RV703 47k
R741 10k
R742 10k
CL741
C736 1.0 :3216 F
C930 0.01
C737 0.1 F
C738 0.1 F
CL743
CL777
R745 100k
R933 47k
R934 39k
C931 1
C739 0.1
C740 0.1 F
(F-8)
Q707
TITLEC BUFFER
Q707 2SC4081
R748 4700
R747 4700
(E-8)
Q708
INVETER
Q708 DTC144WU
(E-9),(F-9),(E-9)
Q705,709,710
PHASE SHIFT
CL744
R753 2200
R780 5600
C769 1 50V <A6>
CHROMA PHASE/GAIN
TH700
RV702 4.7k
C705 18p CH
R776 560
Q710 2SC4081
Q705 2SA1576
Q709 2SC4081
C741 18p CH
R754 2200
R777 1800
R781 18k
R751 2200
R749 22k
R750 27k
C742 0.01 F
C743 0.1
R766 1M
(F-6)
IC704
ENCODER
IC704 M51285BGP
C744 0.01 F
C745 0.01 F
C746 0.022 B
C747 0.022 B
C748 0.01 F
C749 0.47 35V TA
CL746
CL747
R756 0
CLAMP
MOD
VCA
BURST LEVEL
1/4
ID KILLER
KILLER DET
VCA
ACC DET
APC DET
1/2
4fsc VCXO
4fsc fo
CP1
CP2
CP2GEN
VCXO
VCA
FREE RUN
Y/C MIX
SYNC DET
SYNC SW
BGP
BGP DEN
FRAME
C-SYNC SEP
SYNC MIX
ERROR AMP
V-SYNC SEP
AFC
32fH VCO
1/32
C759 0.01
R758 1500
C751 2.2 16V TA
CT702 30p
X701 14.3MHz
R759 56
R760 1k <A>
R761 270
C752 0.01 B
C753 10p CH
C754 270p
R762 100k
CL745
CL776
CL774
CL773
R970 1500
C773 0.047
X703 500kHz
R969 10k
R968 270
C774 1500p B
CL779
R967 2200
L704 100μH
R764 8200
C760 15p CH
C758 0.01 F
C799 1.5 20V <A>
C757 0.1 F:2125
CL778
R788 1200
R789 4700
R787 1500
C756 1 :3216
(E-8)
Q801
TITLE Y BUFFER
R784 1000
C755 270p
C706 1
R763 68k
3

no mark : CAMERA REC mode
＊ : can not be measured

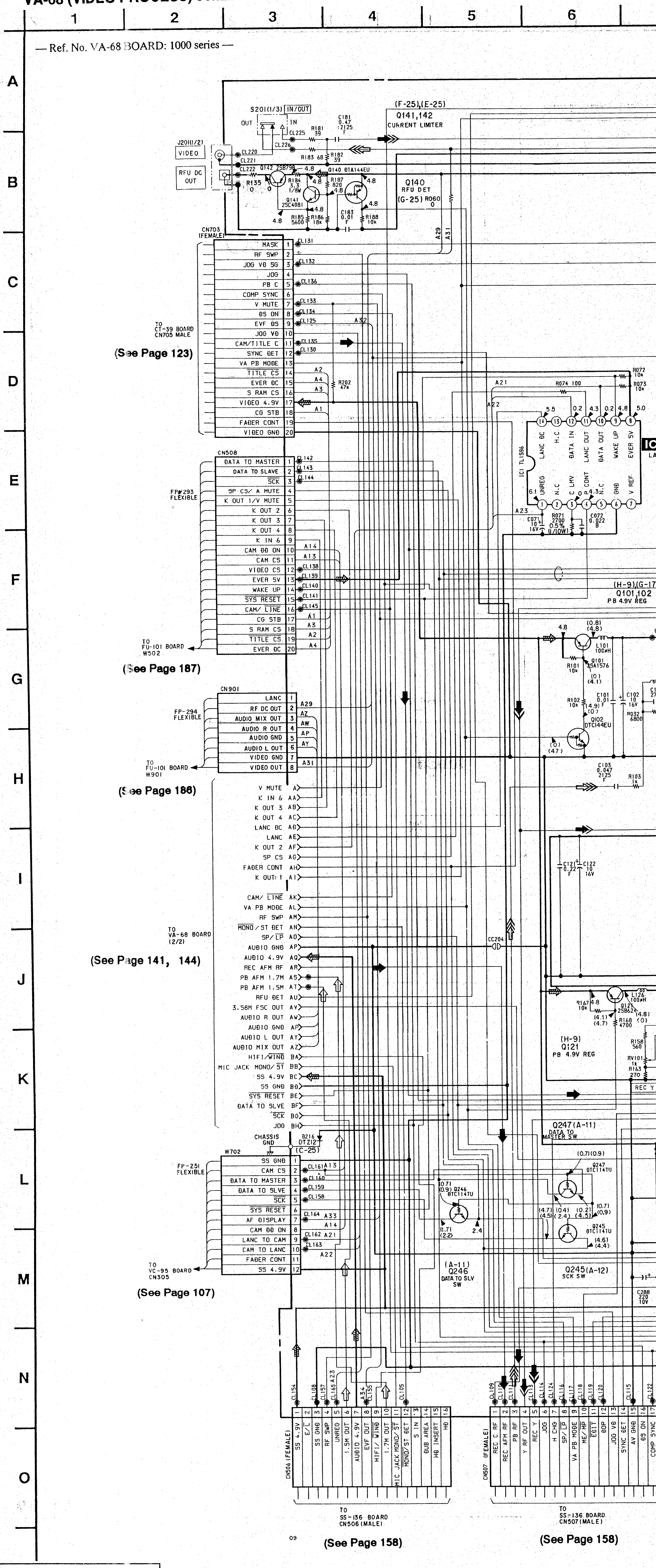
CT-39 BOARD

- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA/DATA	
REC	➡	⇨		
PB				

VA-68 (VIDEO PROCESS) SCHEMATIC DIAGRAM

— Ref. No. VA-68 BOARD: 1000 series —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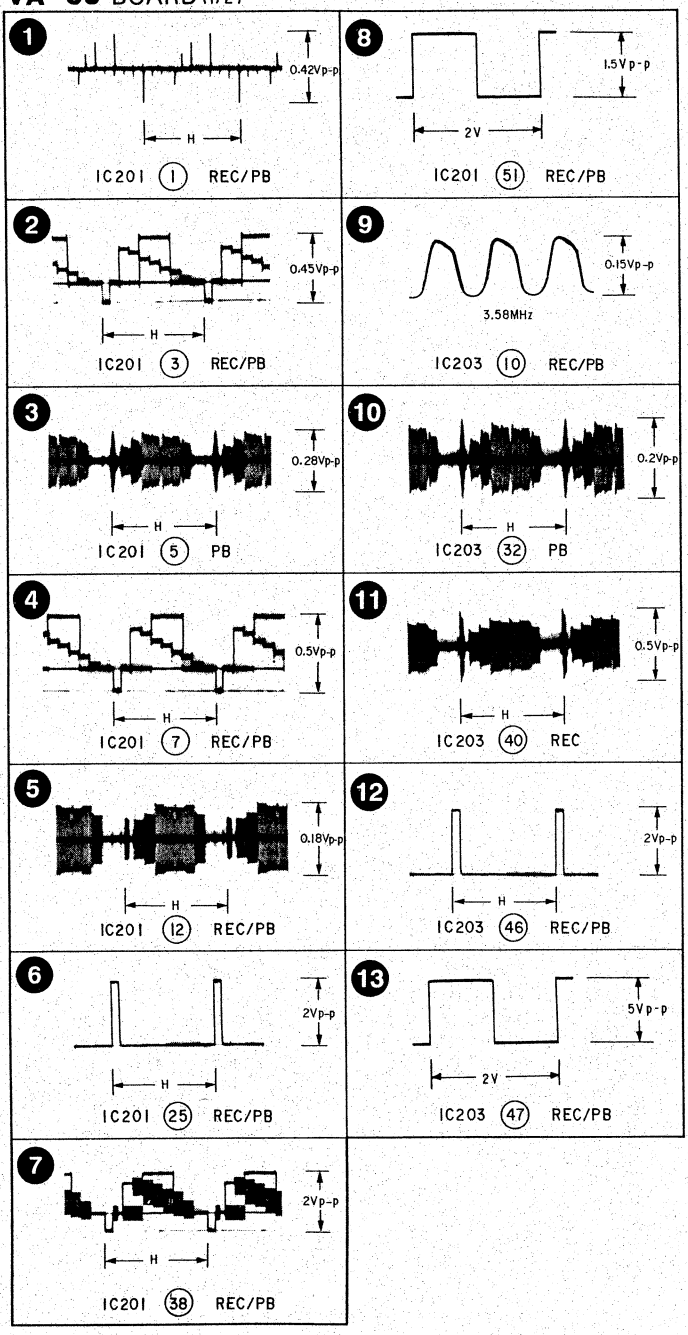
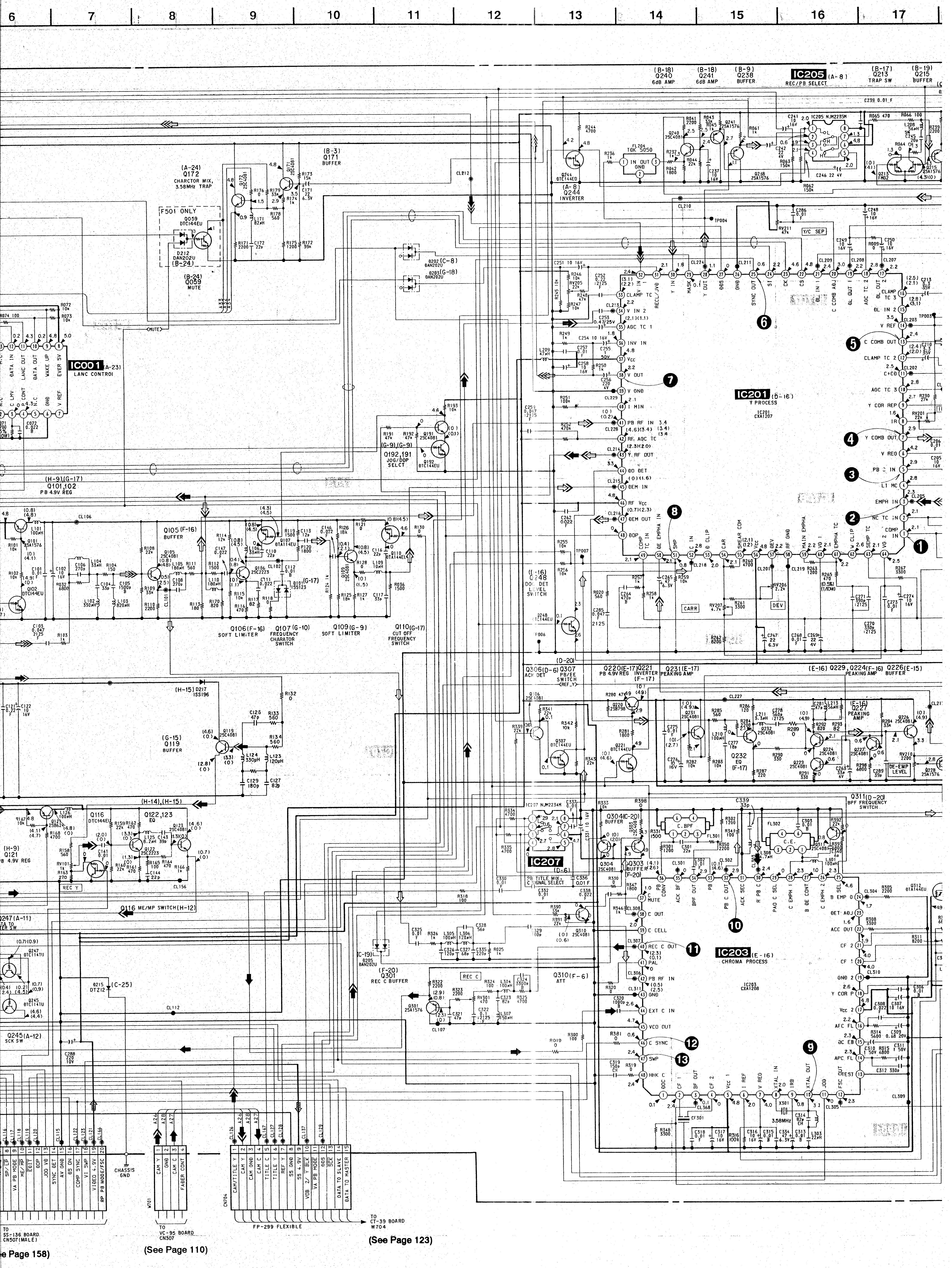
6
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
S201(1/3) IN/OUT
OUT
IN
J201(1/2)
VIDEO
RFU DC OUT
(F-25),(E-25)
Q141,142
CURRENT LIMITER
Q140
RFU DET
(G-25)
CN703 (FEMALE)
MASK
RF SWP
JOG VD SG
JOG
PB C
COMP SYNC
V MUTE
DS ON
EVF DS
JOG VD
CAM/TITLE C
SYNC DET
VA PB MODE
TITLE CS
EVER DC
S RAM CS
VIDEO 4.9V
CG STB
FADER CONT
VIDEO GND
TO CT-39 BOARD CN705 MALE
(See Page 123)
CN508
DATA TO MASTER
DATA TO SLAVE
SCK
SP CS/ A MUTE
K OUT 1/V MUTE
K OUT 2
K OUT 3
K OUT 4
K IN 6
CAM 8D ON
CAM CS
VIDEO CS
EVER 5V
WAKE UP
SYS RESET
CAM/ LINE
CG STB
S RAM CS
TITLE CS
EVER DC
FP-293 FLEXIBLE
TO FU-101 BOARD W502
(See Page 187)
CN901
LANC
RF DC OUT
AUDIO MIX OUT
AUDIO R OUT
AUDIO GND
AUDIO L OUT
VIDEO GND
VIDEO OUT
FP-294 FLEXIBLE
TO FU-101 BOARD W901
(See Page 186)
TO VA-68 BOARD (2/2)
(See Page 141, 144)
W702
SS GND
CAM CS
DATA TO MASTER
DATA TO SLVE
SCK
SYS RESET
AF DISPLAY
CAM 8D ON
LANC TO CAM
CAM TO LANC
FADER CONT
SS 4.9V
FP-251 FLEXIBLE
TO VC-95 BOARD CN305
(See Page 107)
IC1 TL1596
(H-9),(G-17)
Q101,102
PB 4.9V REG
(H-9)
Q121
PB 4.9V REG
Q247(A-11)
DATA TO MASTER SW
(A-11)
Q246
DATA TO SLV SW
Q245(A-12)
SCK SW
CN506 (FEMALE)
TO SS-136 BOARD CN506 (MALE)
(See Page 158)
CN507 (FEMALE)
TO SS-136 BOARD CN507 (MALE)
(See Page 158)

VA-68 BOARD (1/2)



- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA/DATA	
REC	➡	➡➡	➡➡➡	➡
PB	⇨	⇨⇨	⇨⇨⇨	⇨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14
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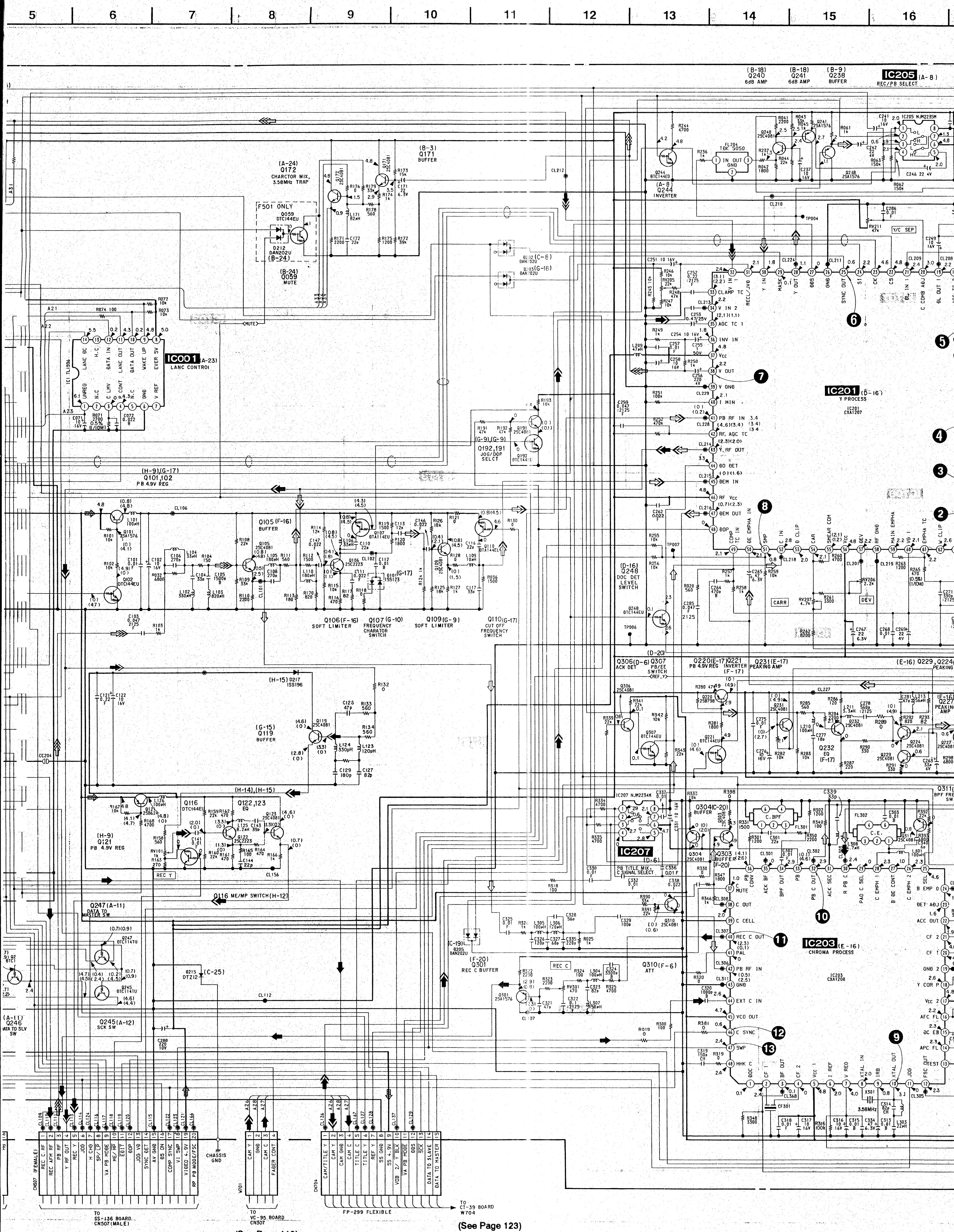
16
17
(B-18) Q240 6dB AMP
(B-18) Q241 6dB AMP
(B-9) Q238 BUFFER
IC205 (A-8) REC/PB SELECT
(B-17) Q213 TRAP SW
(B-19) Q215 BUFFER
IC205 NJM2235M
FL204 TDK 5050
IN OUT GND
(A-8) Q244 INVERTER
Q244 DTC144ED
(B-3) Q171 BUFFER
(A-24) Q172 CHARCTOR MIX, 3.58MHz TRAP
F501 ONLY
Q059 DTC144EU
D212 DAN202U (B-24)
(B-24) Q059 MUTE
D202 (C-8) DAN202U
D203 (G-18) DAN202U
CL212
CL210
TP004
Y/C SEP
IC001 (A-23) LANC CONTROL
DATA IN
LANC OUT
DATA OUT
WAKE UP
EVER 5V
C LMV
CONT
N.C
GND
V REF
MUTE
IC201 (D-16) Y PROCESS
IC201 CXA1207
RECL/VXO
Y IN
MASK
Y OUT
DOS
GND
SYNC OUT
S1
CK
CS
BL IN 1
C COMB ADJ
BL OUT 1
AGC TC 2
BL OUT 2
CLAMP TC 3
BL IN 2
V REF
C COMB OUT
CLAMP TC 2
C+CD
AGC TC 3
Y COR REP
IR
Y COMB OUT
V REG
PB C IN
L1 MC
EMPH IN
NC TC IN
COMP IN
V IN 1
CLAMP TC
V IN 2
AGC TC 1
INV IN
Vcc
V OUT
V GND
I MIN
PB RF IN
RF AGC TC
Y RF OUT
DO DET
DEM IN
RF Vcc
DEM OUT
DOP
COMP TC IN
DE EMPHA IN
SMP
C IN
B CLIP
CAR
SHEAR COM
Vcc
DEV
RF GND
MAIN EMPHA
VG 1
EMPHA TC
W CLIP
SEMP TC
VG 2
CARR
DEV
(A-16) Q248 DOC DET LEVEL SWITCH
Q248 DTC144EU
TP007
F006
Q191 2SC4081
Q192 DTC144EU
(G-9),(G-9) Q192,191 JOG/DOP SELECT
(H-9),(G-17) Q101,102 PB 4.9V REG
Q101 2SA1576
Q102 DTC144EU
CL106
Q105 (F-16) BUFFER
Q105 2SC4081
Q106 2SC2223
Q107 DTA114EU
Q109 2SC4081
Q110 DTA144EU
D101 1SS123
D101 (G-17)
Q106 (F-16) SOFT LIMITER
Q107 (G-10) FREQUENCY CHARATOR SWITCH
Q109 (G-9) SOFT LIMITER
Q110 (G-17) CUT OFF FREQUENCY SWITCH
(H-15) D217 1SS196
(G-15) Q119 BUFFER
Q119 2SC4081
(D-20)
Q306 (D-6) ACK DET
Q307 PB/EE SWITCH (REF_Y)
Q220 (E-17) PB 4.9V REG
Q221 INVERTER (F-17)
Q231 (E-17) PEAKING AMP
(E-16) Q229
Q224 (F-16) PEAKING AMP
Q226 (E-15) BUFFER
Q306 2SC4081
Q307 DTC144EU
Q220 2SB798
Q221 DTC144EU
Q231 2SC4081
Q232 2SC4081
Q232 EQ (F-17)
Q224 2SC4081
Q223 2SC4081
(F-16) Q227 PEAKING AMP
Q227 2SC4081
Q226 2SC4081
Q228 2SA1576
DE-EMP LEVEL
CL227
(H-15),(H-14)
Q116 DTC144EU
Q122,123 EQ
Q121 2SB624
Q123 2SC4081
Q122 2SC2223
(H-9) Q121 PB 4.9V REG
REC Y
CL156
Q116 ME/MP SWITCH (H-12)
Q247 (A-11) DATA TO MASTER SW
Q247 DTC114TU
Q245 DTC114TU
Q245 (A-12) SCK SW
D215 DTZ12 (C-25)
CL112
IC207 NJM2234M
IC207 (D-6)
PB TITLE MIX, C SIGNAL SELECT
Q304 (C-20) BUFFER
Q303 BUFFER (F-20)
Q304 2SC4081
C. BPF
FL301
FL302
C.E.
Q311 (D-20) BPF FREQUENCY SWITCH
Q312 DTA144EU
Q310 2SC4081
Q310 (F-6) ATT
Q301 2SA1576
(F-20) Q301 REC C BUFFER
(C-19) D205 DAN202U
REC C
CL107
IC203 (E-16) CHROMA PROCESS
IC203 CXA1208
PB CONV
ACK BF
BPF OUT
PB
PB C OUT
ACK SEC
R PB C
PAD C SEL
C EMPH 1
B DE CONT
C EMPH 2
SEL
B EMP 0
DET ADJ
ACC OUT
CF 2
CF 1
GND 2
Y COR P
Vcc 2
AFC FL
DC EB
APC FL
TEST
MUTE
C OUT
C CELL
REC C OUT
PAL
PB RF IN
GND
EXT C IN
VCO OUT
C SYNC
SWP
HHK C
DOC
CF
BF OUT
CF 2
Vcc 1
I REF
V REG
XTAL IN
IRB
XTAL OUT
JOG
FSC OUT
X301 3.58MHz
CF301
CL305
CL309
CL304
CL310
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬
SP/LP
VA PB MODE
ME/MP IN
EGIT
DOP
JOG VB
SYNC DET
AV GND
BS ON
COMP SYNC
V1 SWP
VIDEO 4.9V
RP PB MODE/FSC
CHASSIS GND
TO SS-136 BOARD CN507(MALE)
(See Page 158)
CAM Y
GND
CAM C
FABER CONT
W701
TO VC-95 BOARD CN307
(See Page 110)
CN704
CAM/TITLE Y
CAM Y
CAM GND
CAM C
TITLE C
TITLE Y
REF Y
SS GND
SS 4.9V
VDB 2.7V BLK
VA PB MODE
DDS SEK
DATA TO SLAVE
DATA TO MASTER
FP-299 FLEXIBLE
TO CT-39 BOARD W704
(See Page 123)


5
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12
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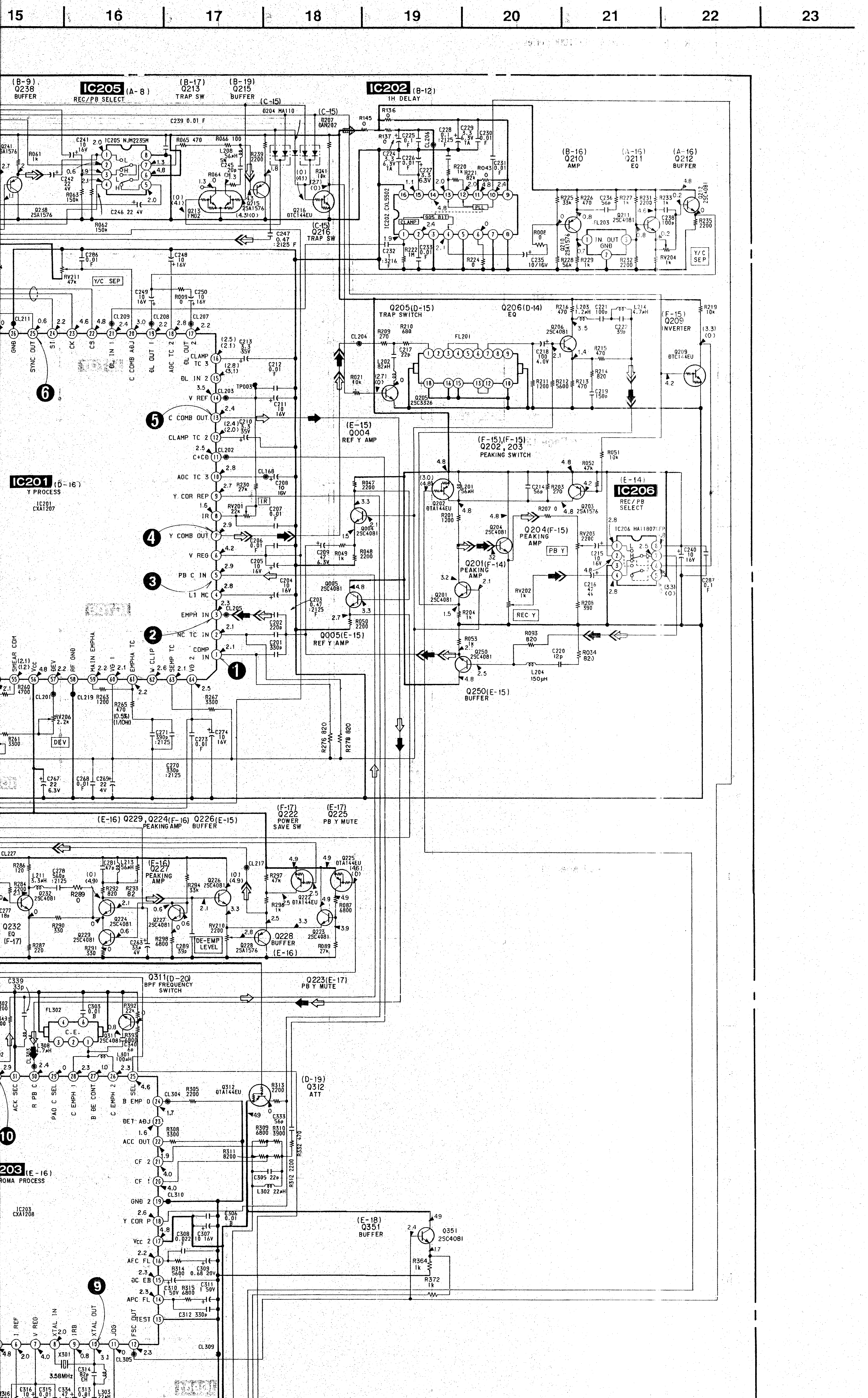
14
15
16
(B-18) Q240 6dB AMP
(B-18) Q241 6dB AMP
(B-9) Q238 BUFFER
IC205 (A-8) REC/PB SELECT
(B-3) Q171 BUFFER
(A-24) Q172 CHARCTOR MIX, 3.58MHz TRAP
F501 ONLY
Q059 DTC144EU
D212 DAN202U (B-24)
(B-24) Q059 MUTE
(A-8) Q244 INVERTER
IC001 (A-23) LANC CONTROL
IC1 TL1596
IC201 (D-16) Y PROCESS
IC201 CXA1207
Q192,191 JOG/DOP SELCT
(H-9),(G-17) Q101,102 PB 4.9V REG
Q105 (F-16) BUFFER
Q106 (F-16) SOFT LIMITER
Q107 (G-10) FREQUENCY CHARATOR SWITCH
Q109 (G-9) SOFT LIMITER
Q110 (G-17) CUT OFF FREQUENCY SWITCH
(D-16) Q248 DOC DET LEVEL SWITCH
Q306 (D-6) ACK DET
Q307 PB/EE SWITCH
Q220 (E-17) PB 4.9V REG
Q221 INVERTER (F-17)
Q231 (E-17) PEAKING AMP
(E-16) Q229, Q224 PEAKING
(G-15) Q119 BUFFER
(H-15) D217 1SS196
(H-14),(H-15)
(H-9) Q121 PB 4.9V REG
Q116 DTC144EU
Q122,123 EQ
REC Y
Q116 ME/MP SWITCH (H-12)
Q247 (A-11) DATA TO MASTER SW
Q245 (A-12) SCK SW
(A-11) Q246 DATA TO SLV SW
D215 DTZ12 (C-25)
IC207 NJM2234M
IC207 (D-6) PB TITLE MIX, C SIGNAL SELECT
Q304 (C-20) BUFFER
Q303 (4.1) BUFFER (F-20)
C.BPF
C.E.
Q232 EQ (F-17)
Q311 BPF FRE SW
(C-19) D205 DAN202U
(F-20) Q301 REC C BUFFER
Q310 (F-6) ATT
IC203 (E-16) CHROMA PROCESS
IC203 CXA1208
3.58MHz
CN507 (FEMALE)
REC C RF
REC AFM RF
PB RF
Y RF OUT
REC Y
JOG
H.CHG
SP/LP
VA PB MODE
ME/MP
EGIT
GDP
JOG VD
SYNC GET
AV GND
6S ON
COMP SYNC
V1 SWP
VIDEO 4.9V
RP PB MODE/FSC
CHASSIS GND
TO SS-136 BOARD CN507 (MALE)
W701
CAM Y
GND
CAM C
FADER CONT
TO VC-95 BOARD CN307
CN704
CAM/TITLE Y
CAM Y
CAM GND
CAM C
TITLE C
TITLE Y
REF Y
SS GND
SS 4.9V
VDB 2/ Y BLK
VA PB MODE
DDS
SCK
DATA TO SLAVE
DATA TO MASTER
FP-299 FLEXIBLE
TO CT-39 BOARD W704

(See Page 158)

(See Page 110)

(See Page 123)


15
16
17
18
19
20
21
22
23
(B-9) Q238 BUFFER
IC205 (A-8) REC/PB SELECT
(B-17) Q213 TRAP SW
(B-19) Q215 BUFFER
IC202 (B-12) 1H DELAY
(B-16) Q210 AMP
(A-16) Q211 EQ
(A-16) Q212 BUFFER
Y/C SEP
(C-15) Q216 TRAP SW
Q205(D-15) TRAP SWITCH
Q206(D-14) EQ
(F-15) Q209 INVERTER
(E-15) Q004 REF Y AMP
(F-15),(F-15) Q202, 203 PEAKING SWITCH
(E-14) IC206 REC/PB SELECT
Q204(F-15) PEAKING AMP
PB Y
Q201(F-14) PEAKING AMP
REC Y
Q005(E-15) REF Y AMP
Q250(E-15) BUFFER
IC201 (D-16) Y PROCESS
IC201 CXA1207
(E-16) Q229, Q224(F-16) PEAKING AMP
Q226(E-15) BUFFER
(F-17) Q222 POWER SAVE SW
(E-17) Q225 PB Y MUTE
(E-16) Q227 PEAKING AMP
Q232 EQ (F-17)
Q228 BUFFER (E-16)
DE-EMP LEVEL
Q311(D-20) BPF FREQUENCY SWITCH
Q223(E-17) PB Y MUTE
(D-19) Q312 ATT
IC203 (E-16) CHROMA PROCESS
IC203 CXA1208
(E-18) Q351 BUFFER
1
2
3
4
5
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9
10

no mark: VTR REC/PB mode
( ) : REC mode
〈 〉 : PB mode
* : can not be measured

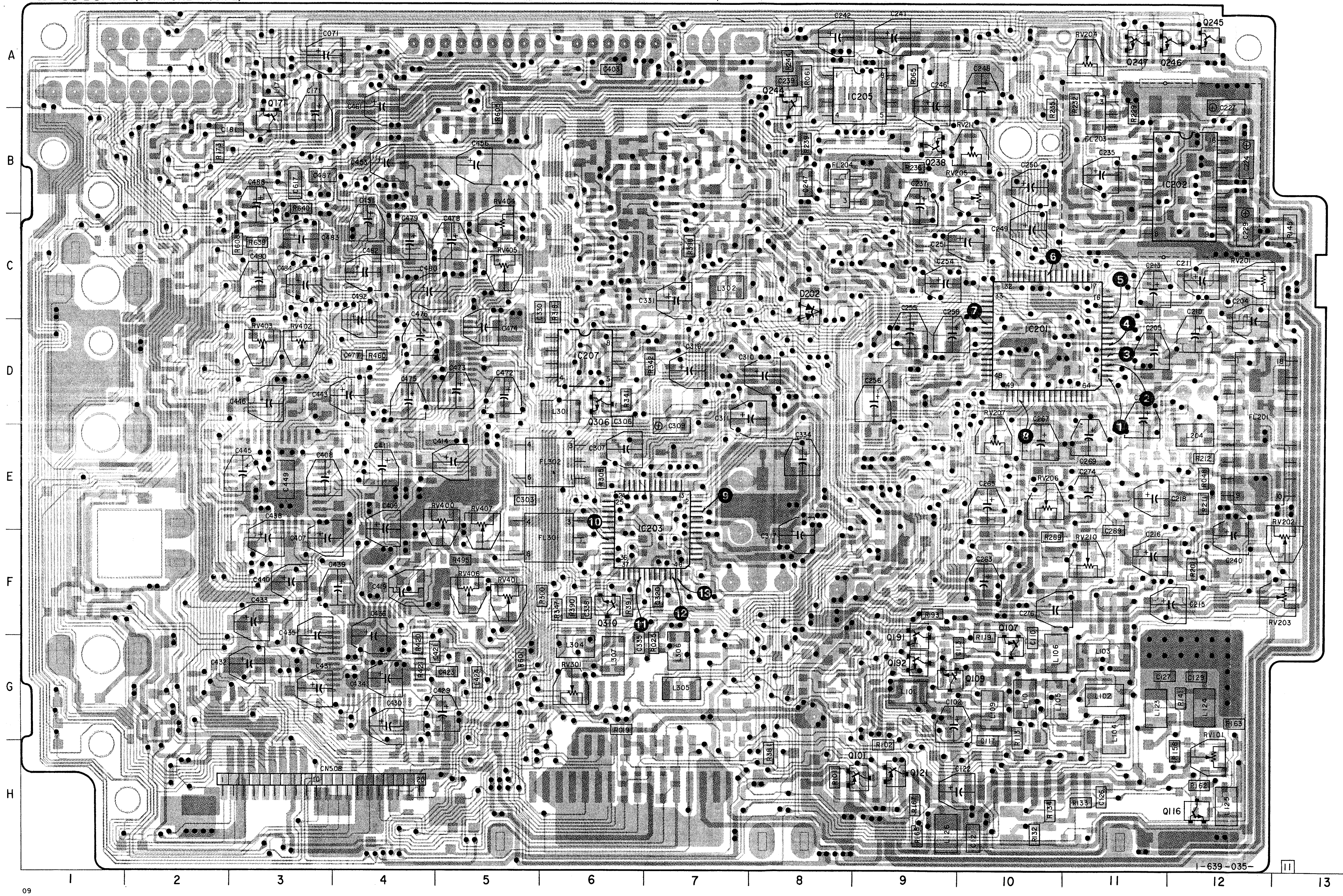
VA-68 BOARD (1/2)

VIDEO VIDEO

VA-68 (VIDEO PROCESS, AUDIO PROCESS) PRINTED WIRING BOARD

— Ref. No. VA-68 BOARD: 1000 series —

VA-68 BOARD (COMPONENT SIDE)



A
B
C
D
E
F
G
H
IC201
IC202
IC203
IC205
IC207
FL201
FL204
FL301
FL302
CN506
RV101
RV201
RV202
RV203
RV204
RV205
RV206
RV207
RV210
RV301
RV400
RV401
RV402
RV403
RV404
RV405
RV406
RV407
Q101
Q107
Q109
Q116
Q121
Q171
Q191
Q192
Q238
Q244
Q245
Q246
Q247
Q306
Q310
D202
1-639-035-
11
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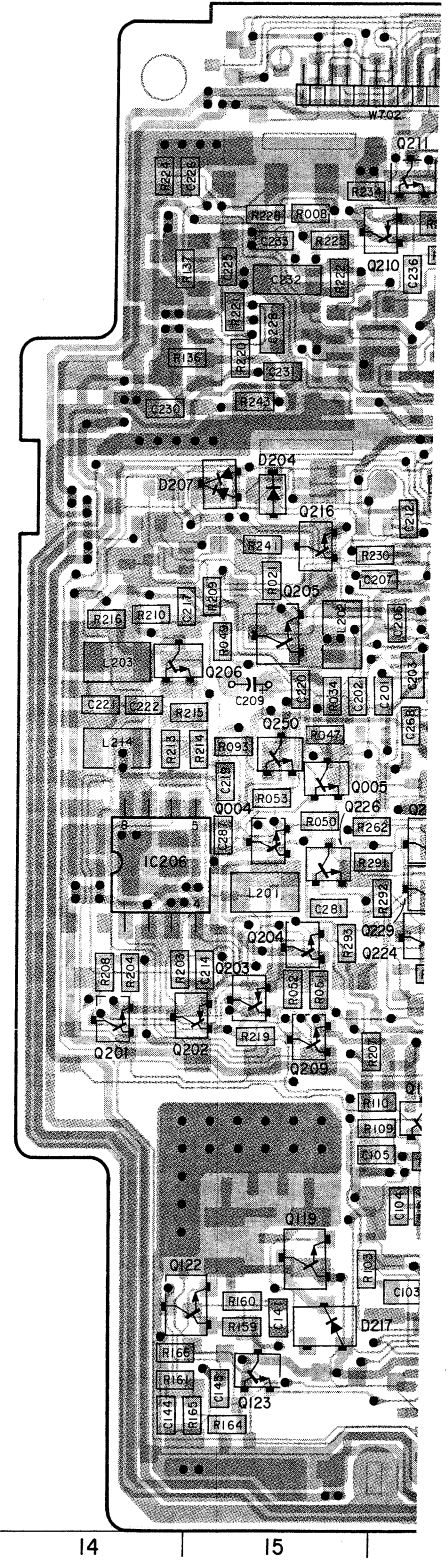
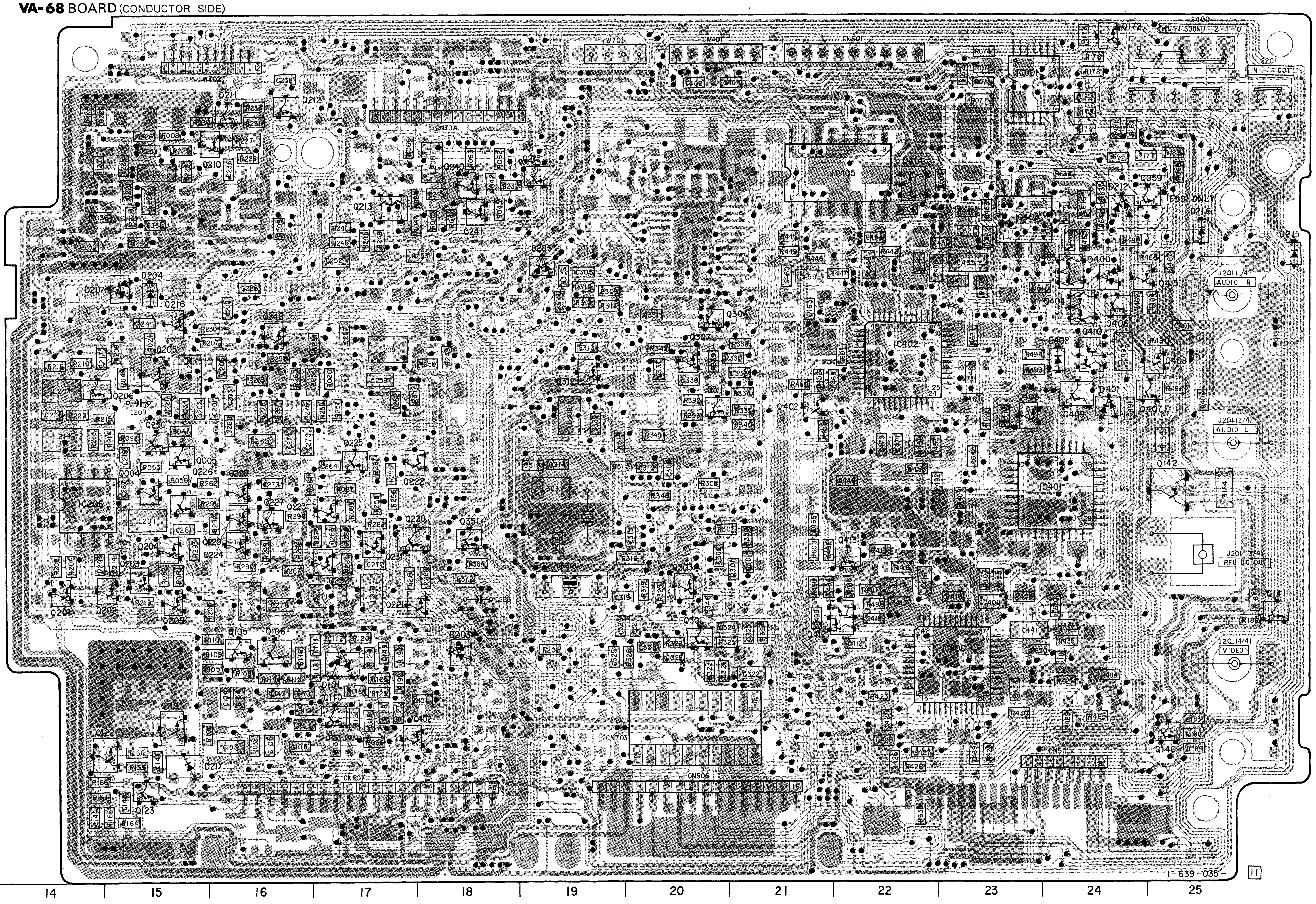
12

VA-68 BOARD (CONDUCTOR SIDE)



IC206
W702
D204
D207
D217
Q119
Q122
Q123
Q201
Q202
Q203
Q204
Q205
Q206
Q209
Q210
Q211
Q216
Q224
Q226
Q229
Q250
13
14
15

VA-68 BOARD (CONDUCTOR SIDE)


W702
W701
CN401
CN601
CN704
CN703
CN506
CN507
CN901
S400
HI FI SOUND 2-1-D
S201
IN — OUT
IC001
IC206
IC400
IC401
IC402
IC405
X301
L303
J201(1/4) AUDIO R
J201(2/4) AUDIO L
J201(3/4) RFU DC OUT
J201(4/4) VIDEO
IF501 ONLY
1-639-035-
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13
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16
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25

* A-7062-715-A VA-68 BOARD, COMPL

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< DIODE >

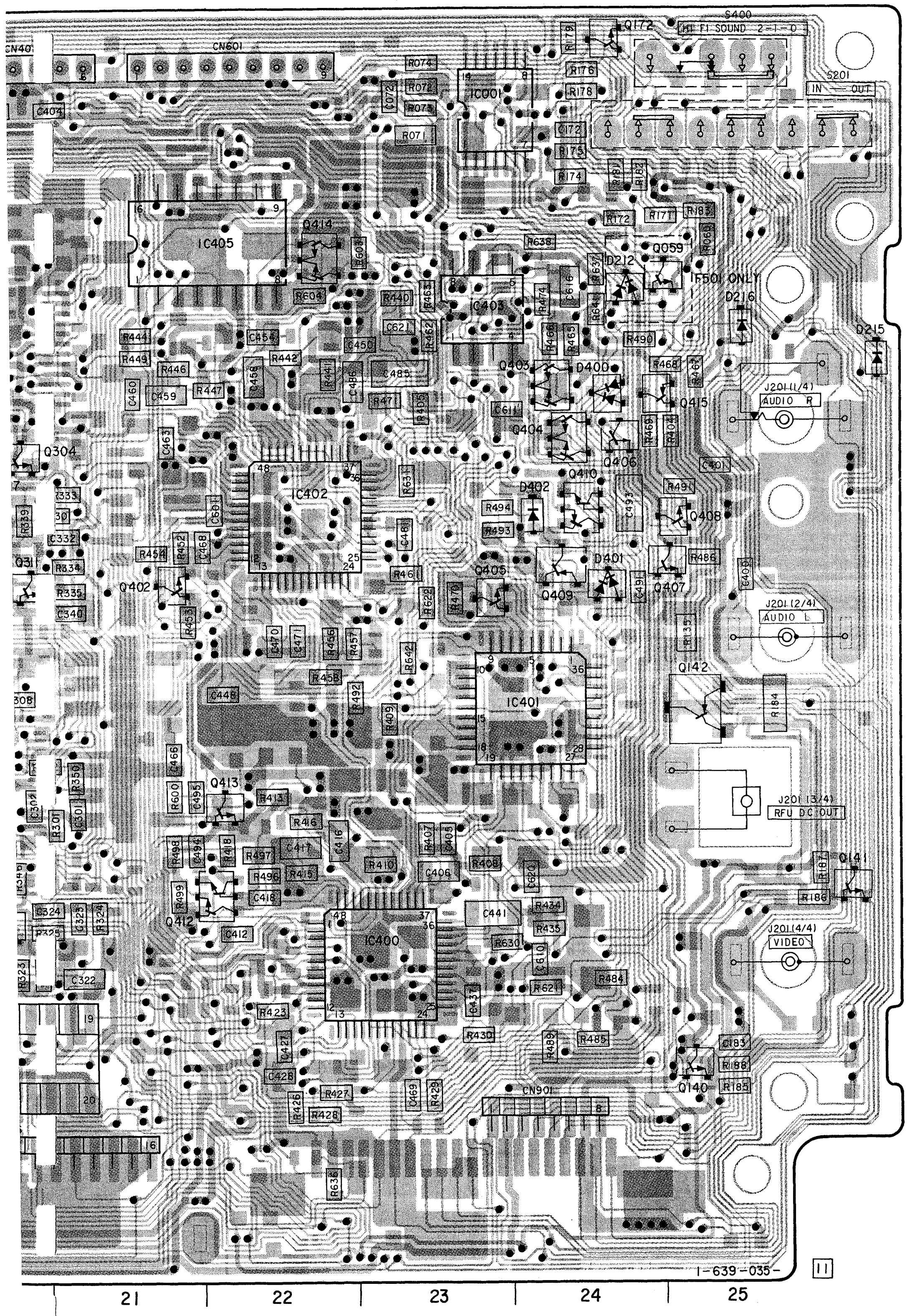
D101	8-719-800-76	DIODE	1SS
D202	8-719-941-86	DIODE	DAN
D203	8-719-941-86	DIODE	DAN
D204	8-719-404-46	DIODE	MA11
D205	8-719-941-86	DIODE	DAN2
D207	8-719-941-86	DIODE	DAN2
D212	8-719-941-86	DIODE	DAN2
D215	8-719-404-46	DIODE	MA11
D216	8-719-404-46	DIODE	MA11
D217	8-719-801-41	DIODE	1SS1
D400	8-719-941-86	DIODE	DAN2
D401	8-719-941-86	DIODE	DAN2
D402	8-719-404-46	DIODE	MA11

< IC >

IC001	8-759-999-02	IC	TL1596C
IC201	8-752-036-19	IC	CXA1207
IC202	8-752-332-68	IC	CXL5502
IC203	8-752-036-20	IC	CXA1208
IC205	8-759-710-29	IC	NJM2235
IC206	8-759-320-76	IC	HA11807
IC207	8-759-710-07	IC	NJM2234
IC400	8-759-823-19	IC	CXA-14
IC401	8-759-823-21	IC	CXA-15
IC402	8-759-823-19	IC	CXA-14
IC403	8-759-603-27	IC	M5201F
IC405	8-759-009-22	IC	MC1409

< TRANSISTO

Q004	8-729-905-35	TRANSISTOR
Q005	8-729-905-35	TRANSISTOR
Q059	8-729-905-18	TRANSISTOR
Q101	8-729-905-23	TRANSISTOR
Q102	8-729-905-18	TRANSISTOR
Q105	8-729-905-35	TRANSISTOR
Q106	8-729-102-07	TRANSISTOR
Q107	8-729-905-12	TRANSISTOR
Q109	8-729-905-35	TRANSISTOR
Q110	8-729-905-12	TRANSISTOR
Q116	8-729-905-18	TRANSISTOR
Q119	8-729-102-07	TRANSISTOR
Q121	8-729-905-23	TRANSISTOR
Q122	8-729-102-07	TRANSISTOR
Q123	8-729-905-35	TRANSISTOR
Q140	8-729-905-12	TRANSISTOR
Q141	8-729-905-35	TRANSISTOR
Q142	8-729-101-07	TRANSISTOR
Q171	8-729-905-35	TRANSISTOR
Q172	8-729-905-35	TRANSISTOR
Q191	8-729-905-35	TRANSISTOR
Q192	8-729-905-18	TRANSISTOR
Q201	8-729-905-35	TRANSISTOR



* A-7062-715-A VA-68 BOARD, COMPLETE
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(DIODE)

D101	8-719-800-76	DIODE	1SS226
D202	8-719-941-86	DIODE	DAN202U
D203	8-719-941-86	DIODE	DAN202U
D204	8-719-404-46	DIODE	MA110
D205	8-719-941-86	DIODE	DAN202U
D207	8-719-941-86	DIODE	DAN202U
D212	8-719-941-86	DIODE	DAN202U (F501 ONLY)
D215	8-719-404-46	DIODE	MA110
D216	8-719-404-46	DIODE	MA110
D217	8-719-801-41	DIODE	1SS196
D400	8-719-941-86	DIODE	DAN202U
D401	8-719-941-86	DIODE	DAN202U
D402	8-719-404-46	DIODE	MA110

(IC)

IC001	8-759-999-02	IC	TL1596CDSB
IC201	8-752-036-19	IC	CXA1207R
IC202	8-752-332-68	IC	CXL5502M
IC203	8-752-036-20	IC	CXA1208R
IC205	8-759-710-29	IC	NJM2235M
IC206	8-759-320-76	IC	HA118070FP
IC207	8-759-710-07	IC	NJM2234M
IC400	8-759-823-19	IC	CXA-1488R
IC401	8-759-823-21	IC	CXA-1536Q
IC402	8-759-823-19	IC	CXA-1488R
IC403	8-759-603-27	IC	M5201FP
IC405	8-759-009-22	IC	MC14094BF

(TRANSISTOR)

Q004	8-729-905-35	TRANSISTOR	2SC4081R
Q005	8-729-905-35	TRANSISTOR	2SC4081R
Q059	8-729-905-18	TRANSISTOR	DTC144EU (F501 ONLY)
Q101	8-729-905-23	TRANSISTOR	2SA1576R
Q102	8-729-905-18	TRANSISTOR	DTC144EU
Q105	8-729-905-35	TRANSISTOR	2SC4081R
Q106	8-729-102-07	TRANSISTOR	2SC2223-F13
Q107	8-729-905-12	TRANSISTOR	DTA144EU
Q109	8-729-905-35	TRANSISTOR	2SC4081R
Q110	8-729-905-12	TRANSISTOR	DTA144EU
Q116	8-729-905-18	TRANSISTOR	DTC144EU
Q119	8-729-102-07	TRANSISTOR	2SC2223-F13
Q121	8-729-905-23	TRANSISTOR	2SA1576R
Q122	8-729-102-07	TRANSISTOR	2SC2223-F13
Q123	8-729-905-35	TRANSISTOR	2SC4081R
Q140	8-729-905-12	TRANSISTOR	DTA144EU
Q141	8-729-905-35	TRANSISTOR	2SC4081R
Q142	8-729-101-07	TRANSISTOR	2SB798-T1-DLDK
Q171	8-729-905-35	TRANSISTOR	2SC4081R
Q172	8-729-905-35	TRANSISTOR	2SC4081R
Q191	8-729-905-35	TRANSISTOR	2SC4081R
Q192	8-729-905-18	TRANSISTOR	DTC144EU
Q201	8-729-905-35	TRANSISTOR	2SC4081R
Q202	8-729-905-12	TRANSISTOR	DTA144EU
Q203	8-729-905-23	TRANSISTOR	2SA1576R
Q204	8-729-905-35	TRANSISTOR	2SC4081R
Q205	8-729-100-66	TRANSISTOR	2SC1623
Q206	8-729-905-35	TRANSISTOR	2SC4081R
Q209	8-729-905-18	TRANSISTOR	DTC144EU
Q210	8-729-905-23	TRANSISTOR	2SA1576R
Q211	8-729-905-35	TRANSISTOR	2SC4081R
Q212	8-729-905-35	TRANSISTOR	2SC4081R
Q213	8-729-904-07	TRANSISTOR	FMG2
Q215	8-729-905-23	TRANSISTOR	2SA1576R
Q216	8-729-905-18	TRANSISTOR	DTC144EU
Q220	8-729-141-48	TRANSISTOR	2SB624-BV345
Q221	8-729-905-18	TRANSISTOR	DTC144EU
Q222	8-729-905-12	TRANSISTOR	DTA144EU
Q223	8-729-905-35	TRANSISTOR	2SC4081R
Q224	8-729-905-35	TRANSISTOR	2SC4081R
Q225	8-729-905-12	TRANSISTOR	DTA144EU
Q226	8-729-905-35	TRANSISTOR	2SC4081R
Q227	8-729-905-35	TRANSISTOR	2SC4081R
Q228	8-729-905-23	TRANSISTOR	2SA1576R
Q229	8-729-905-35	TRANSISTOR	2SC4081R
Q231	8-729-905-35	TRANSISTOR	2SC4081R
Q232	8-729-905-35	TRANSISTOR	2SC4081R
Q238	8-729-905-23	TRANSISTOR	2SA1576R
Q240	8-729-905-35	TRANSISTOR	2SC4081R
Q241	8-729-905-23	TRANSISTOR	2SA1576R
Q244	8-729-905-18	TRANSISTOR	DTC144EU
Q245	8-729-905-XX	TRANSISTOR	DTC114TU
Q246	8-729-905-XX	TRANSISTOR	DTC114TU
Q247	8-729-905-XX	TRANSISTOR	DTC114TU
Q248	8-729-905-18	TRANSISTOR	DTC144EU
Q250	8-729-905-35	TRANSISTOR	2SC4081R
Q301	8-729-905-23	TRANSISTOR	2SA1576R
Q303	8-729-905-35	TRANSISTOR	2SC4081R
Q304	8-729-905-35	TRANSISTOR	2SC4081R
Q306	8-729-905-35	TRANSISTOR	2SC4081R
Q307	8-729-905-18	TRANSISTOR	DTC144EU
Q310	8-729-905-35	TRANSISTOR	2SC4081R
Q311	8-729-905-35	TRANSISTOR	2SC4081R
Q312	8-729-905-12	TRANSISTOR	DTA144EU
Q351	8-729-905-35	TRANSISTOR	2SC4081R
Q402	8-729-905-35	TRANSISTOR	2SC4081R
Q403	8-729-904-07	TRANSISTOR	FMG2
Q404	8-729-904-07	TRANSISTOR	FMG2
Q405	8-729-905-18	TRANSISTOR	DTC144EU
Q406	8-729-905-18	TRANSISTOR	DTC144EU
Q407	8-729-905-XX	TRANSISTOR	DTC114TU
Q408	8-729-905-XX	TRANSISTOR	DTC114TU
Q409	8-729-216-22	TRANSISTOR	2SA1162
Q410	8-729-907-39	TRANSISTOR	IMD2
Q412	8-729-402-81	TRANSISTOR	XN4501
Q413	8-729-905-18	TRANSISTOR	DTC144EU
Q414	8-729-904-07	TRANSISTOR	FMG2
Q415	8-729-905-23	TRANSISTOR	2SA1576R

* A-7062-715-A VA-68 BOARD, COMPLETE
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⟨ DIODE ⟩

D101	8-719-800-76	DIODE	1SS226
D202	8-719-941-86	DIODE	DAN202U
D203	8-719-941-86	DIODE	DAN202U
D204	8-719-404-46	DIODE	MA110
D205	8-719-941-86	DIODE	DAN202U
D207	8-719-941-86	DIODE	DAN202U
D212	8-719-941-86	DIODE	DAN202U (F501 ONLY)
D215	8-719-404-46	DIODE	MA110
D216	8-719-404-46	DIODE	MA110
D217	8-719-801-41	DIODE	1SS196
D400	8-719-941-86	DIODE	DAN202U
D401	8-719-941-86	DIODE	DAN202U
D402	8-719-404-46	DIODE	MA110

⟨ IC ⟩

IC001	8-759-999-02	IC	TL1596CDSB
IC201	8-752-036-19	IC	CXA1207R
IC202	8-752-332-68	IC	CXL5502M
IC203	8-752-036-20	IC	CXA1208R
IC205	8-759-710-29	IC	NJM2235M
IC206	8-759-320-76	IC	HA118070FP
IC207	8-759-710-07	IC	NJM2234M
IC400	8-759-823-19	IC	CXA-1488R
IC401	8-759-823-21	IC	CXA-1536Q
IC402	8-759-823-19	IC	CXA-1488R
IC403	8-759-603-27	IC	M5201FP
IC405	8-759-009-22	IC	MC14094BF

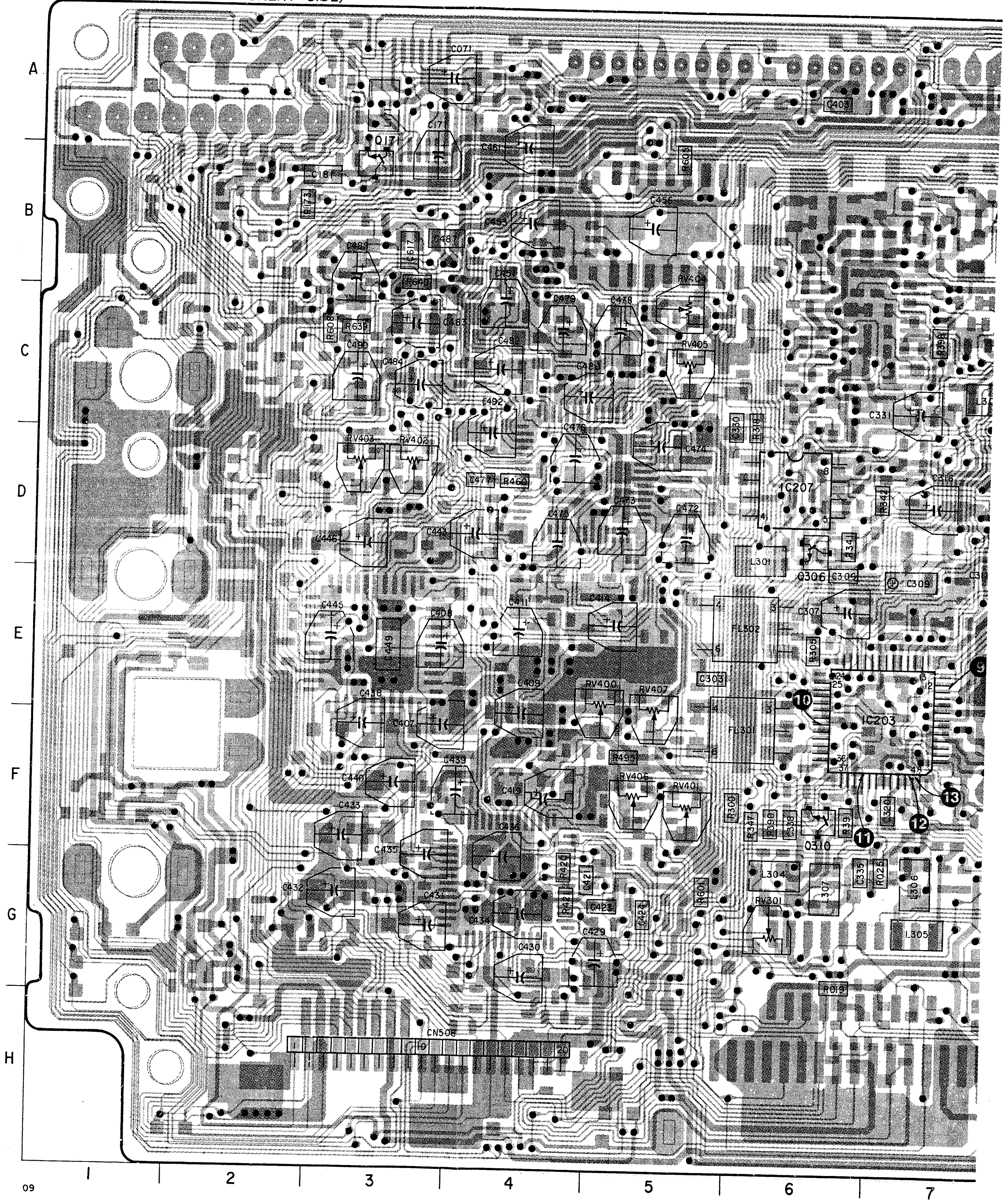
⟨ TRANSISTOR ⟩

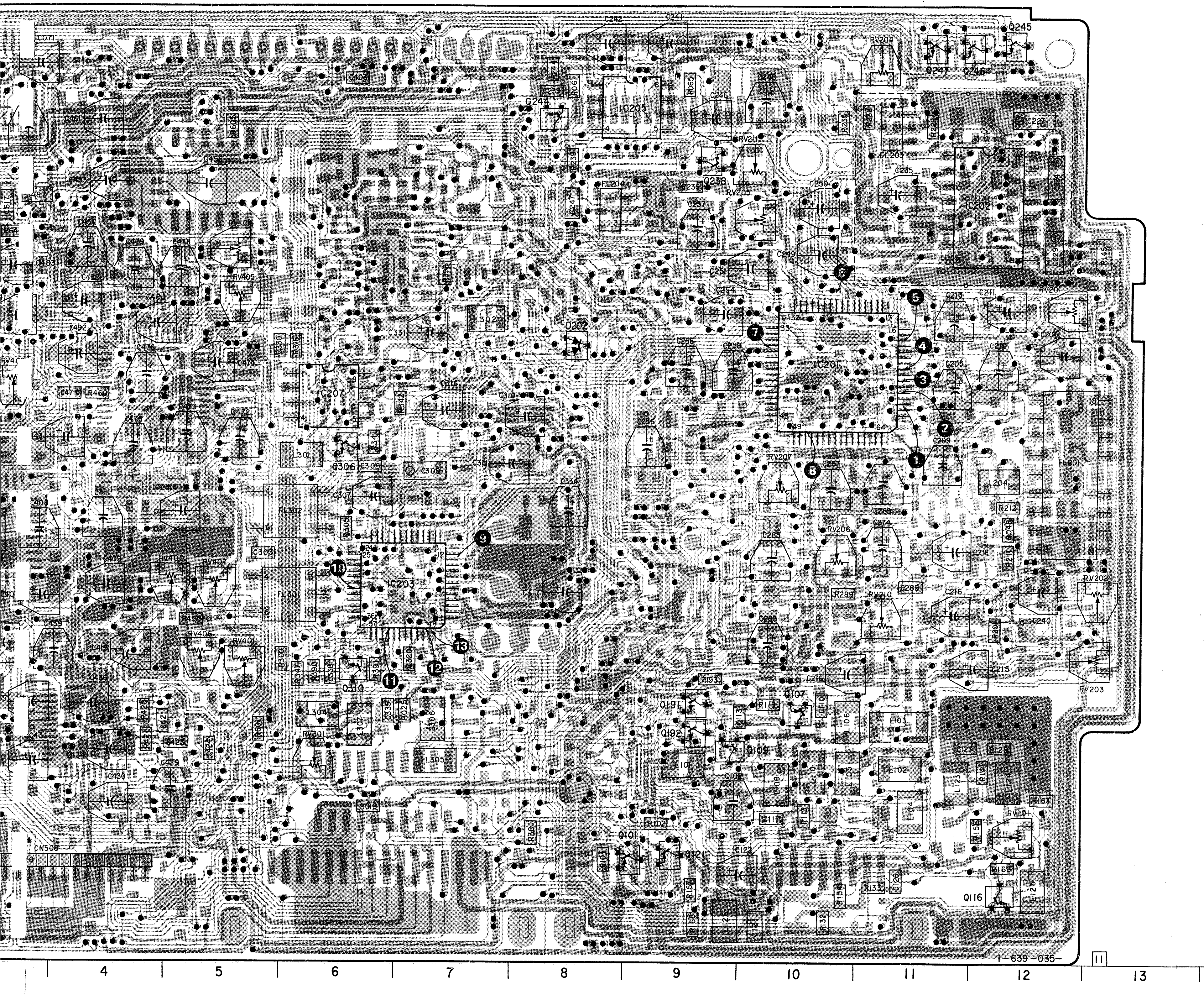
Q004	8-729-905-35	TRANSISTOR	2SC4081R
Q005	8-729-905-35	TRANSISTOR	2SC4081R
Q059	8-729-905-18	TRANSISTOR	DTC144EU (F501 ONLY)
Q101	8-729-905-23	TRANSISTOR	2SA1576R
Q102	8-729-905-18	TRANSISTOR	DTC144EU
Q105	8-729-905-35	TRANSISTOR	2SC4081R
Q106	8-729-102-07	TRANSISTOR	2SC2223-F13
Q107	8-729-905-12	TRANSISTOR	DTA144EU
Q109	8-729-905-35	TRANSISTOR	2SC4081R
Q110	8-729-905-12	TRANSISTOR	DTA144EU
Q116	8-729-905-18	TRANSISTOR	DTC144EU
Q119	8-729-102-07	TRANSISTOR	2SC2223-F13
Q121	8-729-905-23	TRANSISTOR	2SA1576R
Q122	8-729-102-07	TRANSISTOR	2SC2223-F13
Q123	8-729-905-35	TRANSISTOR	2SC4081R
Q140	8-729-905-12	TRANSISTOR	DTA144EU
Q141	8-729-905-35	TRANSISTOR	2SC4081R
Q142	8-729-101-07	TRANSISTOR	2SB798-T1-DLDK
Q171	8-729-905-35	TRANSISTOR	2SC4081R
Q172	8-729-905-35	TRANSISTOR	2SC4081R
Q191	8-729-905-35	TRANSISTOR	2SC4081R
Q192	8-729-905-18	TRANSISTOR	DTC144EU
Q201	8-729-905-35	TRANSISTOR	2SC4081R
Q202	8-729-905-12	TRANSISTOR	DTA144EU
Q203	8-729-905-23	TRANSISTOR	2SA1576R
Q204	8-729-905-35	TRANSISTOR	2SC4081R
Q205	8-729-100-66	TRANSISTOR	2SC1623
Q206	8-729-905-35	TRANSISTOR	2SC4081R
Q209	8-729-905-18	TRANSISTOR	DTC144EU
Q210	8-729-905-23	TRANSISTOR	2SA1576R
Q211	8-729-905-35	TRANSISTOR	2SC4081R
Q212	8-729-905-35	TRANSISTOR	2SC4081R
Q213	8-729-904-07	TRANSISTOR	FMG2
Q215	8-729-905-23	TRANSISTOR	2SA1576R
Q216	8-729-905-18	TRANSISTOR	DTC144EU
Q220	8-729-141-48	TRANSISTOR	2SB624-BV345
Q221	8-729-905-18	TRANSISTOR	DTC144EU
Q222	8-729-905-12	TRANSISTOR	DTA144EU
Q223	8-729-905-35	TRANSISTOR	2SC4081R
Q224	8-729-905-35	TRANSISTOR	2SC4081R
Q225	8-729-905-12	TRANSISTOR	DTA144EU
Q226	8-729-905-35	TRANSISTOR	2SC4081R
Q227	8-729-905-35	TRANSISTOR	2SC4081R
Q228	8-729-905-23	TRANSISTOR	2SA1576R
Q229	8-729-905-35	TRANSISTOR	2SC4081R
Q231	8-729-905-35	TRANSISTOR	2SC4081R
Q232	8-729-905-35	TRANSISTOR	2SC4081R
Q238	8-729-905-23	TRANSISTOR	2SA1576R
Q240	8-729-905-35	TRANSISTOR	2SC4081R
Q241	8-729-905-23	TRANSISTOR	2SA1576R
Q244	8-729-905-18	TRANSISTOR	DTC144EU
Q245	8-729-905-XX	TRANSISTOR	DTC114TU
Q246	8-729-905-XX	TRANSISTOR	DTC114TU
Q247	8-729-905-XX	TRANSISTOR	DTC114TU
Q248	8-729-905-18	TRANSISTOR	DTC144EU
Q250	8-729-905-35	TRANSISTOR	2SC4081R
Q301	8-729-905-23	TRANSISTOR	2SA1576R
Q303	8-729-905-35	TRANSISTOR	2SC4081R
Q304	8-729-905-35	TRANSISTOR	2SC4081R
Q306	8-729-905-35	TRANSISTOR	2SC4081R
Q307	8-729-905-18	TRANSISTOR	DTC144EU
Q310	8-729-905-35	TRANSISTOR	2SC4081R
Q311	8-729-905-35	TRANSISTOR	2SC4081R
Q312	8-729-905-12	TRANSISTOR	DTA144EU
Q351	8-729-905-35	TRANSISTOR	2SC4081R
Q402	8-729-905-35	TRANSISTOR	2SC4081R
Q403	8-729-904-07	TRANSISTOR	FMG2
Q404	8-729-904-07	TRANSISTOR	FMG2
Q405	8-729-905-18	TRANSISTOR	DTC144EU
Q406	8-729-905-18	TRANSISTOR	DTC144EU
Q407	8-729-905-XX	TRANSISTOR	DTC114TU
Q408	8-729-905-XX	TRANSISTOR	DTC114TU
Q409	8-729-216-22	TRANSISTOR	2SA1162
Q410	8-729-907-39	TRANSISTOR	IMD2
Q412	8-729-402-81	TRANSISTOR	XN4501
Q413	8-729-905-18	TRANSISTOR	DTC144EU
Q414	8-729-904-07	TRANSISTOR	FMG2
Q415	8-729-905-23	TRANSISTOR	2SA1576R

VA-68 (VIDEO PROCESS, AUDIO PROCESS) PRINTED WIRING BOARD

— Ref. No. VA-68 BOARD: 1000 series —

VA-68 BOARD (COMPONENT SIDE)




IC201
IC202
IC203
IC205
IC207
RV201
RV202
RV203
RV204
RV205
RV206
RV207
RV208
RV210
RV211
RV400
RV401
RV404
RV405
RV406
RV407
FL201
FL203
FL204
FL301
FL302
Q101
Q107
Q109
Q116
Q121
Q191
Q192
Q238
Q244
Q245
Q246
Q247
Q306
Q310
D202
L301
L302
L304
L305
L306
CN508
1-639-035-
11
4
5
6
7
8
9
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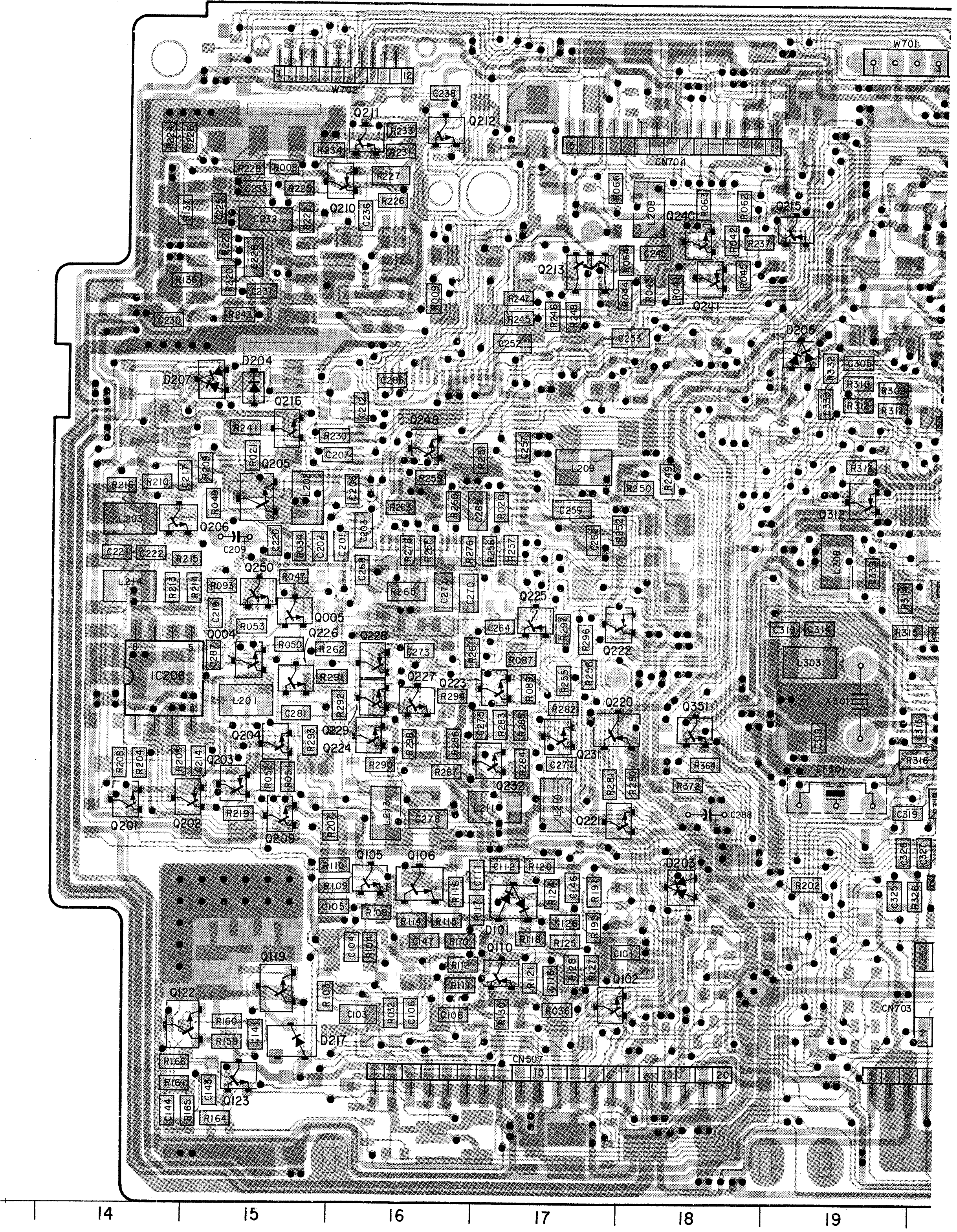
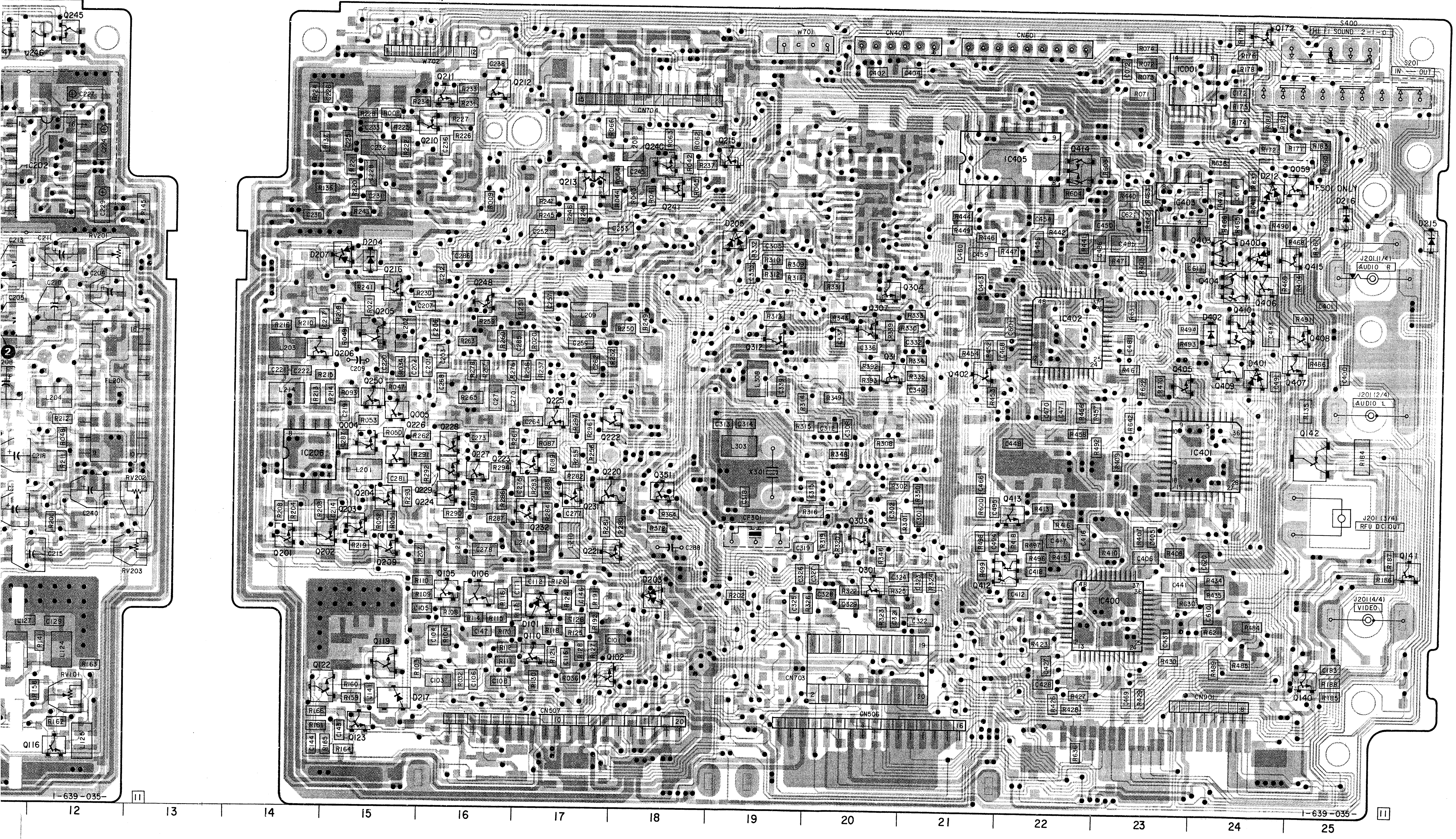
11
12
13

VA-68 BOARD (CONDUCTOR SIDE)


W701
W702
CN704
CN703
CN507
IC206
Q102
Q105
Q106
Q110
Q119
Q122
Q123
Q201
Q202
Q203
Q204
Q205
Q206
Q209
Q210
Q211
Q212
Q213
Q215
Q216
Q220
Q221
Q222
Q223
Q224
Q225
Q226
Q227
Q228
Q229
Q231
Q232
Q240
Q241
Q248
Q250
Q312
Q351
Q004
Q005
D101
D204
D205
D206
D207
D217
L201
L203
L209
L213
L214
L303
L308
X301
CF301
14
15
16
17
18
19

VA-68 BOARD (CONDUCTOR SIDE)



W701
W702
CN401
CN601
CN704
CN703
CN506
CN507
CN901
S400
HI FI SOUND 2-1-0
S201
IN — OUT
IC001
IC405
IC402
IC401
IC400
IC206
IC202
J201(1/4)
AUDIO R
J201(2/4)
AUDIO L
J201(3/4)
RFU DC OUT
J201(4/4)
VIDEO
F501 ONLY
X301
CF301
L303
RV201
RV202
RV203
RV101
1-639-035-
11
12
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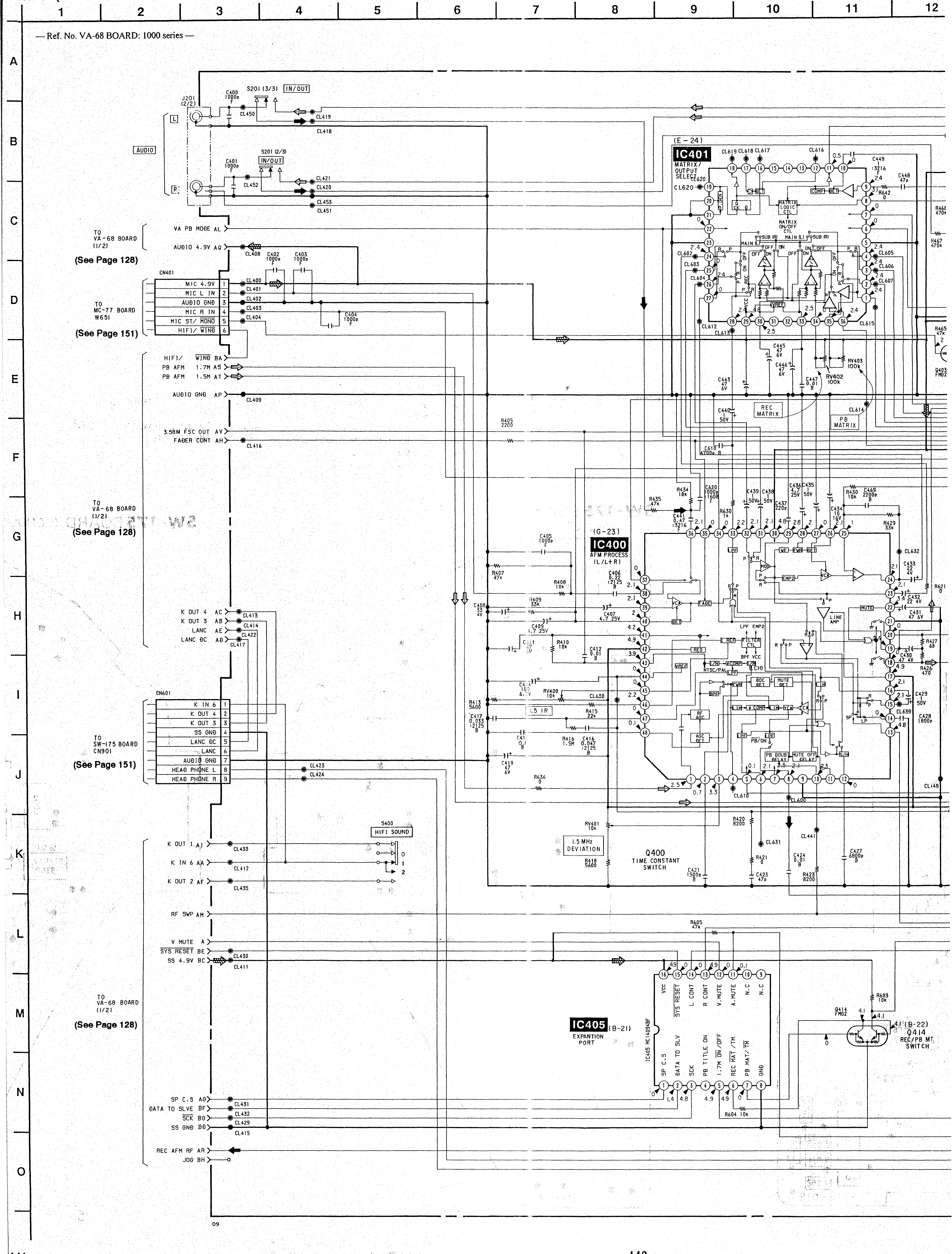
25

VA-68 (AUDIO PROCESS) SCHEMATIC DIAGRAM

— Ref. No. VA-68 BOARD: 1000 series —



1
2
3
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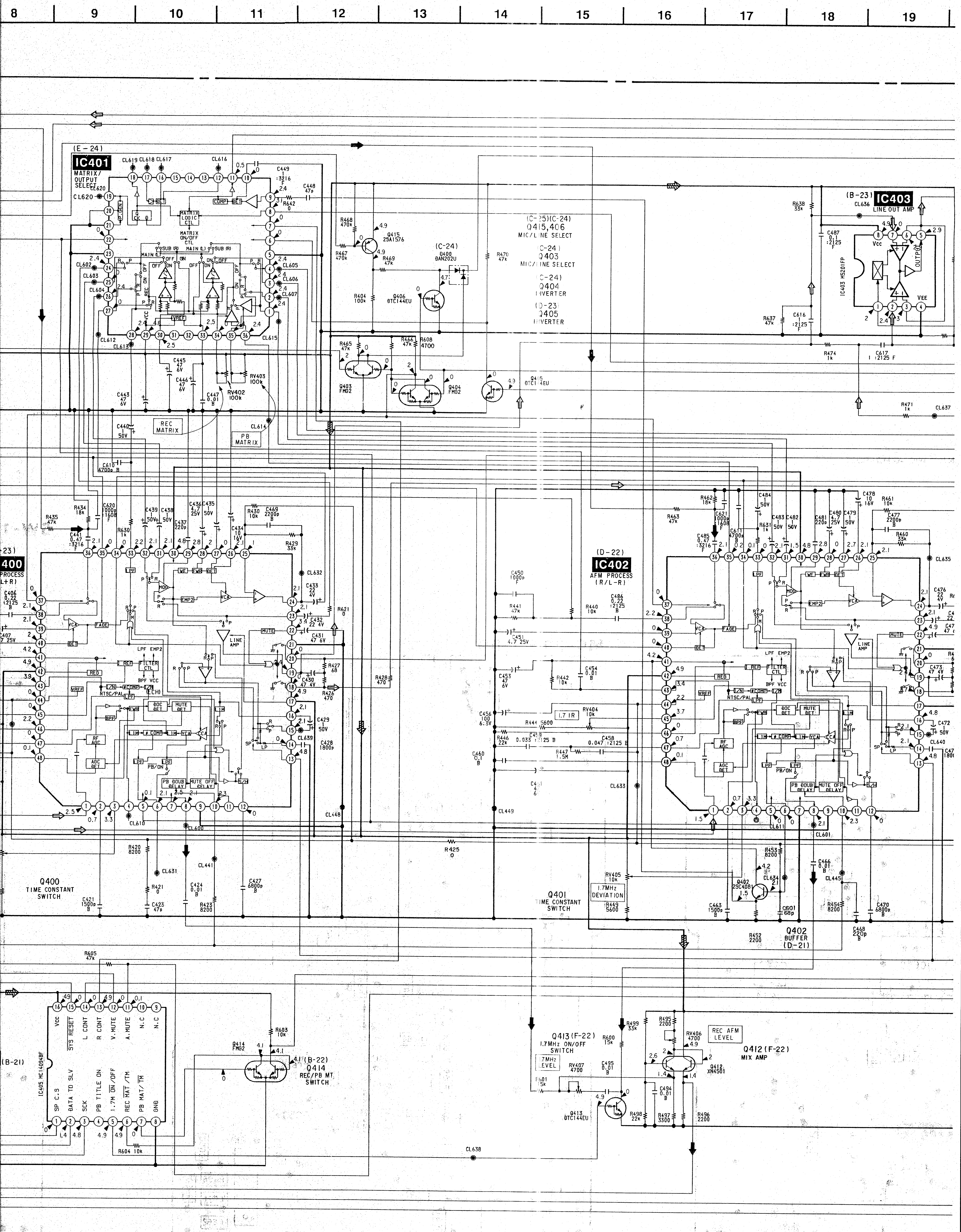
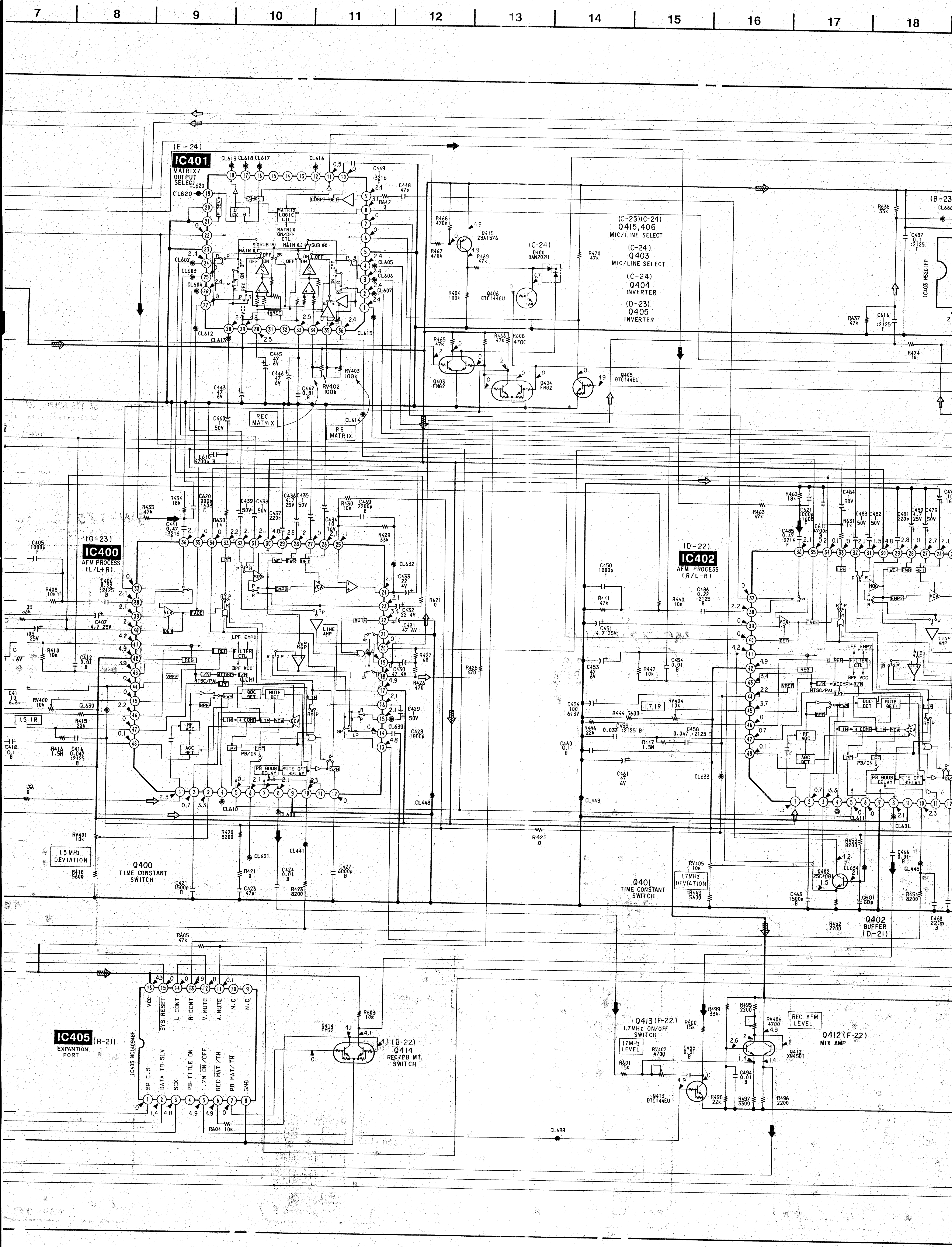
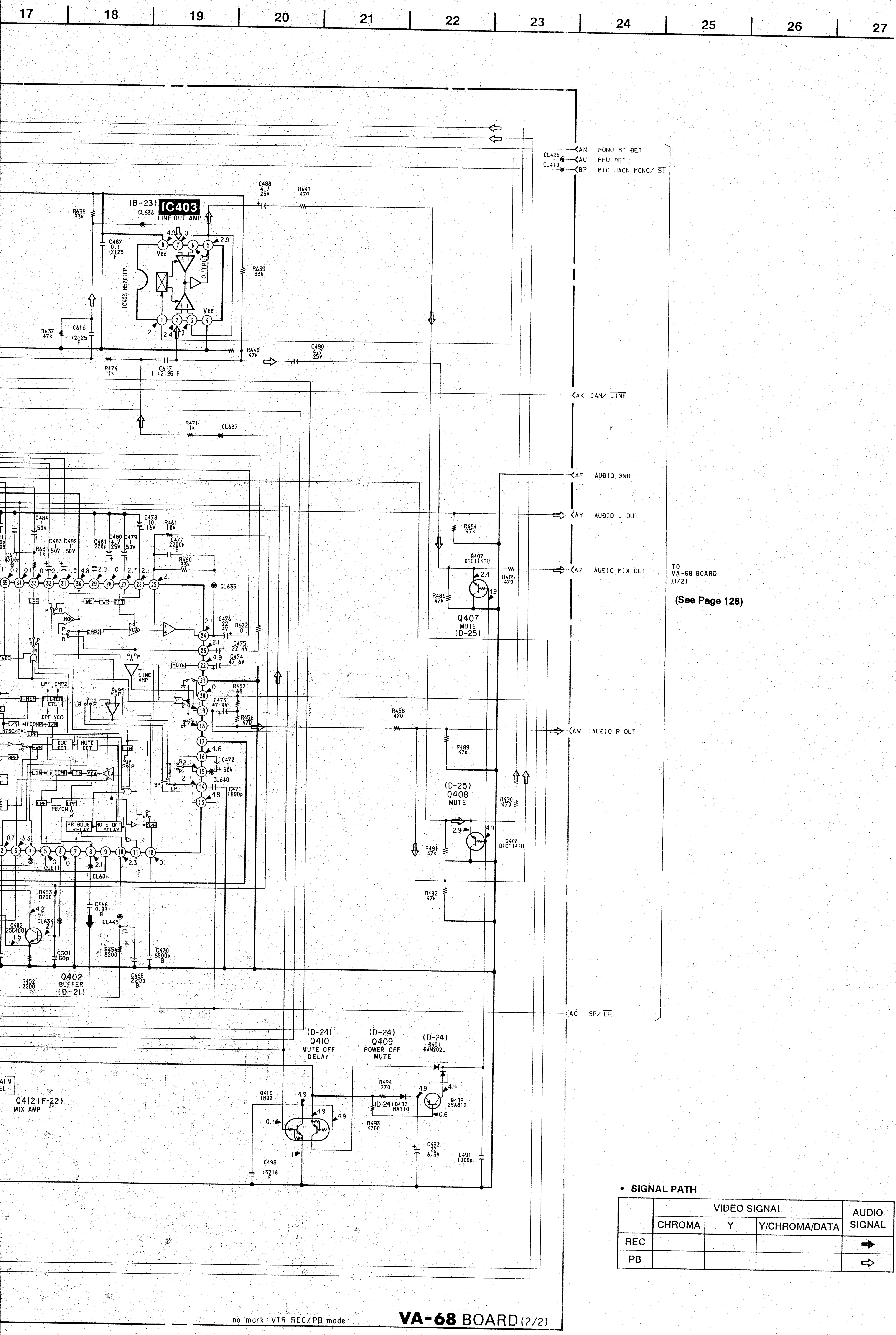
7
8
9
10
11
12
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
J201 (2/2)
AUDIO
L
R
C400 1000p F
S201 (3/3) IN/OUT
S201 (2/3) IN/OUT
C401 1000p F
CL450
CL452
CL419
CL418
CL421
CL420
CL453
CL451
TO VA-68 BOARD (1/2)
(See Page 128)
VA PB MODE AL
AUDIO 4.9V AQ
CL408
C402 1000p F
C403 1000p F
CN401
MIC 4.9V
MIC L IN
AUDIO GND
MIC R IN
MIC ST/ MONO
HIFI/ WIND
CL400
CL401
CL402
CL403
CL404
C404 1000p F
TO MC-77 BOARD W651
(See Page 151)
HIFI/ WIND BA
PB AFM 1.7M AS
PB AFM 1.5M AT
AUDIO GND AP
CL409
3.58M FSC OUT AV
FADER CONT AH
CL416
R405 2200
TO VA-68 BOARD (1/2)
(See Page 128)
K OUT 4 AC
K OUT 3 AB
LANC AE
LANC DC AD
CL413
CL414
CL422
CL417
CN601
K IN 6
K OUT 4
K OUT 3
SS GND
LANC DC
LANC
AUDIO GND
HEAD PHONE L
HEAD PHONE R
TO SW-175 BOARD CN901
(See Page 151)
CL423
CL424
S400 HIFI SOUND
K OUT 1 AJ
K IN 6 AA
K OUT 2 AF
CL433
CL412
CL435
RF SWP AM
V MUTE A
SYS RESET BE
SS 4.9V BC
CL430
CL411
TO VA-68 BOARD (1/2)
(See Page 128)
SP C.S AG
DATA TO SLVE BF
SCK BG
SS GND BD
CL431
CL432
CL429
CL415
REC AFM RF AR
JOG BH
(E-24)
IC401
MATRIX/ OUTPUT SELECT
CL619 CL618 CL617
CL616
CL620
MATRIX LOGIC CTL
MATRIX ON/OFF CTL
SUB (R) SUB (R) MAIN (L) MAIN (L)
COMP
DET
C449 :3216
C448 47p
R642 0
CL602
CL603
CL604
CL605
CL606
CL607
CL612
CL613
CL615
VREF
C445 47 6V
C446 47 6V
C447 0.01 B
RV403 100k
RV402 100k
C443 47 6V
C440 1 50V
REC MATRIX
PB MATRIX
CL614
C610 4700p B
R434 18k
R435 47k
C620 1000p :1608 F
R630 1k
C441 0.47 :3216
C439 1 50V
C438 1 50V
C437 220p
C436 4.7 25V
C435 1 50V
C434 10 16V
R430 10k
C469 2200p B
R429 33k
CL632
C433 22 4V
(G-23)
IC400
AFM PROCESS (L/L+R)
C405 1000p F
R407 47k
R408 10k
C406 0.22 :2125 B
C408 33 4V
R409 33k
C407 4.7 25V
C409 4.7 25V
C411
R410 10k
C412 0.01 B
VCA
FADE
DET
LPF
EMP2
WF
EWB
LINE AMP
MUTE
REF
FILTER CTL
BPF VCC
REG
VREF
NTSC/PAL
LPF
(L CH)
DOC DET
MUTE DET
BPF
RF AGC
AGC DET
PB/ON
PB DOUB DELAY
MUTE OFF DELAY
C432 22 4V
C431 47 6V
R427 68
C430 47 4V
R426 470
C429 1 50V
C428 1800p
CL639
R621 0
C4 100 6.3V
RV400 10k
CL630
1.5 IR
R415 22k
R413 5600
C417 0.033 :2125 B
C418 0.1
R416 1.5H
C416 0.047 :2125 B
C419 47 6V
R636 0
CL610
CL600
CL448
RV401 10k
1.5 MHz DEVIATION
R418 5600
R420 8200
CL631
Q400 TIME CONSTANT SWITCH
C421 1500p B
R421 0
C423 47p
C424 0.01 B
R423 8200
CL441
C427 6800p B
R468 470k
R467 470k
R465 47k
Q403 FMG2
R605 47k
IC405 (B-21) EXPANTION PORT
IC405 MC14094BF
VCC
SYS RESET
L CONT
R CONT
V.MUTE
A.MUTE
N.C
N.C
SP C.S
DATA TO SLV
SCK
PB TITLE ON
1.7M ON/OFF
REC MAT/TM
PB MAT/TM
GND
R604 10k
R603 10k
Q414 FMG2
(B-22) Q414 REC/PB MT SWITCH
09


8
9
10
11
12
13
14
15
16
17
18
19
(E-24)
IC401
MATRIX/OUTPUT SELECT
MATRIX LOGIC CTL
MATRIX ON/OFF CTL
REC MATRIX
PB MATRIX
RV402 100k
RV403 100k
(C-25)(C-24)
Q415,406
MIC/LINE SELECT
(C-24)
Q403
MIC/LINE SELECT
(C-24)
Q404
INVERTER
(D-23)
Q405
INVERTER
Q415 2SA1576
D400 DAN202U
Q406 DTC144EU
Q403 FMG2
Q404 FMG2
Q405 DTC144EU
(B-23)
IC403
LINE OUT AMP
IC403 M5201FP
VCC
VEE
OUTPUT
400
PROCESS
(L+R)
(D-22)
IC402
AFM PROCESS
(R/L-R)
LPF
WF
EWB
DET
VCA
EMP2
FADE
MUTE
LINE AMP
REG
VREF
FILTER CTL
LPF EMP2
BPF VCC
NTSC/PAL
BPF
RF AGC
AGC DET
DOC DET
MUTE DET
COMP
PB/ON
PB DOUB DELAY
MUTE OFF DELAY
S/H
1.7 IR
RV404 10k
RV405 10k
1.7MHz DEVIATION
Q400
TIME CONSTANT SWITCH
Q401
TIME CONSTANT SWITCH
Q402 2SC4081
Q402
BUFFER
(D-21)
(B-21)
IC405 MC14094BF
VCC
SYS RESET
L CONT
R CONT
V.MUTE
A.MUTE
N.C
N.C
SP C.S
DATA TO SLV
SCK
PB TITLE ON
1.7M ON/OFF
REC MAT/TM
PB MAT/TM
GND
R604 10k
R605 47k
R603 10k
Q414 FMG2
(B-22)
Q414
REC/PB MT SWITCH
Q413 (F-22)
1.7MHz ON/OFF SWITCH
1.7MHz LEVEL
RV407 4700
Q413 DTC144EU
RV406 4700
REC AFM LEVEL
Q412 (F-22)
MIX AMP
Q412 XN4501
CL638


7
8
9
10
11
12
13
14
15
16
17
18
(E-24)
IC401
MATRIX/
OUTPUT
SELECT
(C-25)(C-24)
Q415,406
MIC/LINE SELECT
(C-24)
Q403
MIC/LINE SELECT
(C-24)
Q404
INVERTER
(D-23)
Q405
INVERTER
REC
MATRIX
PB
MATRIX
RV403
100k
RV402
100k
(G-23)
IC400
AFM PROCESS
(L/L+R)
(D-22)
IC402
AFM PROCESS
(R/L-R)
1.5 IR
1.7 IR
RV401
10k
1.5 MHz
DEVIATION
Q400
TIME CONSTANT
SWITCH
RV405
10k
1.7MHz
DEVIATION
Q401
TIME CONSTANT
SWITCH
Q402
BUFFER
(D-21)
IC405
(B-21)
EXPANTION
PORT
IC405 MC14094BF
VCC
SYS RESET
L CONT
R CONT
V.MUTE
A.MUTE
N.C
N.C
SP C.S
DATA TO SLV
SCK
PB TITLE ON
1.7M ON/OFF
REC MAT /TH
PB MAT/TH
GND
Q414
(B-22)
REC/PB MT
SWITCH
Q413(F-22)
1.7MHz ON/OFF
SWITCH
1.7MHz
LEVEL
RV407
4700
REC AFM
LEVEL
RV406
4700
Q412(F-22)
MIX AMP
Q412
XN4501
Q413
DTC144EU
(B-23)
IC403 M5201FP
CL638


17
18
19
20
21
22
23
24
25
26
27
(B-23) IC403
LINE OUT AMP
CL636
IC403 M5201FP
Vcc
VEE
OUTPUT
C488 4.7 25V
R641 470
R638 33k
C487 0.1 :2125 F
R639 33k
R637 47k
C616 1 :2125 F
R640 47k
C490 4.7 25V
R474 1k
C617 1 :2125 F
AN MONO ST DET
AU RFU DET
BB MIC JACK MONO/ ST
CL426
CL410
AK CAM/ LINE
R471 1k
CL637
AP AUDIO GND
AY AUDIO L OUT
AZ AUDIO MIX OUT
AW AUDIO R OUT
AO SP/ LP
TO VA-68 BOARD (1/2)
(See Page 128)
R484 47k
Q407 DTC114TU
R485 470
R486 47k
Q407 MUTE (D-25)
R458 470
R489 47k
(D-25) Q408 MUTE
R490 470
Q408 DTC114TU
R491 47k
R492 47k
C484 1 50V
C483 1 50V
C482 1 50V
C481 220p
C480 4.7 25V
C479 1 50V
C478 10 16V
R461 10k
C477 2200p B
R460 33k
CL635
R631 1k
C611 4700p B
C476 22 4V
R622 0
C475 22 4V
C474 47 6V
R457 68
C473 47 4V
R456 470
C472 1 50V
CL640
C471 1800p
LPF
MOD
EMP2
VCA
WE
EWR
DET
MUTE
LINE AMP
LPF EMP2
FILTER CTL
BPF VCC
NTSC/PAL
DOC DET
MUTE DET
COMP
LIM
PB/ON
PB DOUB DELAY
MUTE OFF DELAY
S/H
SP
LP
CL611
CL601
R453 8200
Q402 2SC4081
CL634
C466 0.01 B
CL445
R454 8200
C470 6800p B
C601 68p
R452 2200
Q402 BUFFER (D-21)
C468 220p B
AFM EL
Q412 (F-22) MIX AMP
(D-24) Q410 MUTE OFF DELAY
(D-24) Q409 POWER OFF MUTE
(D-24) D401 DAN202U
Q410 IMD2
R494 270
(D-24) D402 MA110
Q409 2SA812
R493 4700
C492 22 6.3V
C491 1000p F
C493 1 :3216 F

no mark : VTR REC/PB mode

VA-68 BOARD (2/2)

• **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA/DATA	
REC				➡
PB				⇨

MC-77 (MIC AMP), SW-175 (CAMERA FUNCTION SWITCH) PRINTED WIRING BOARDS

— Ref. No. MC-77 BOARD: 2000 series, SW-175 BOARD: 2000 series —

* A-7062-718-A MC-77 BOARD, COMPLETE
****

〈 DIODE 〉

D652	8-719-106-43	DIODE	RD9.1MB1
D655	8-719-404-46	DIODE	MA110

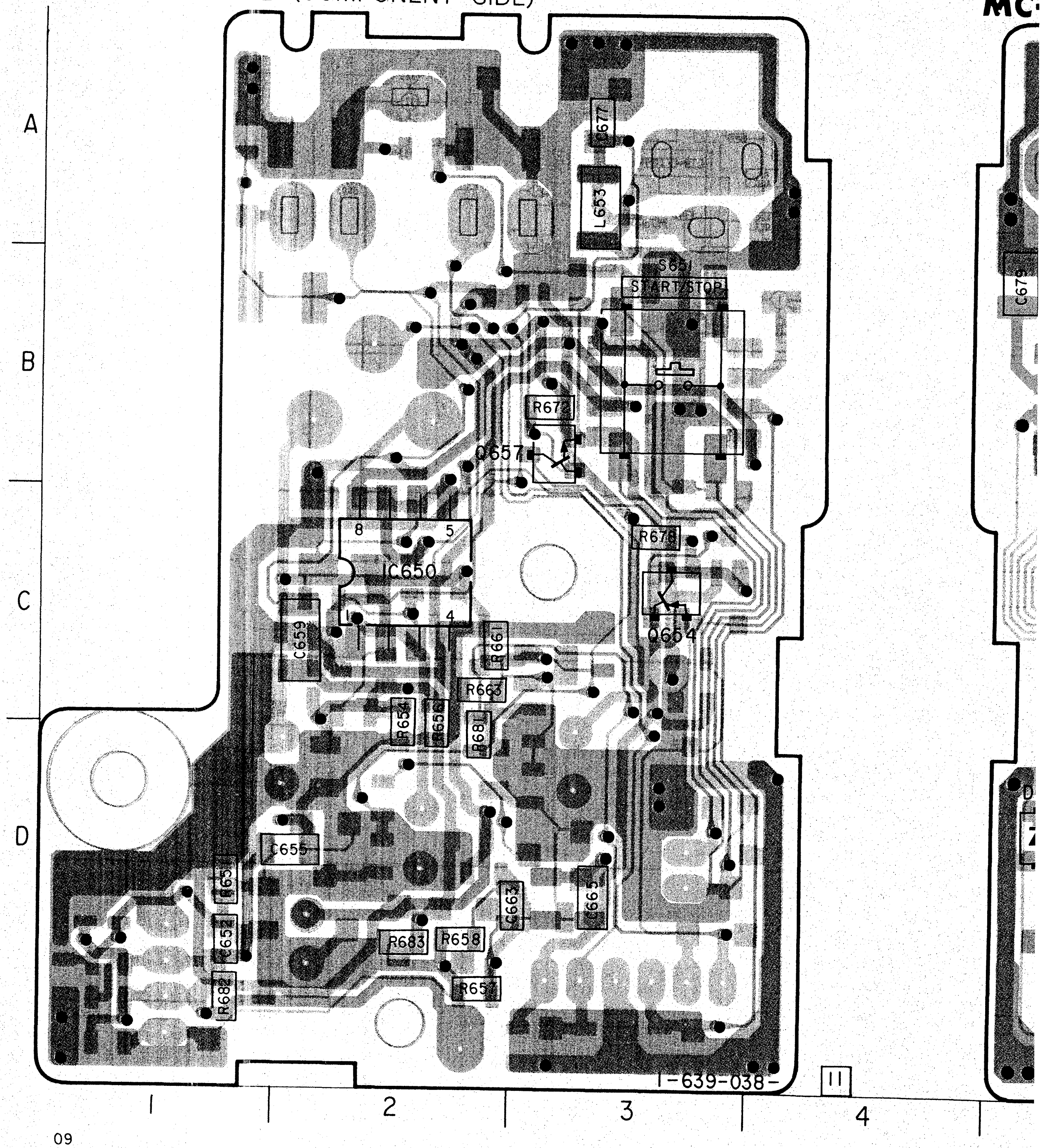
〈 IC 〉

IC650	8-759-822-37	IC	LA7293M-TE-L
IC651	8-759-822-37	IC	LA7293M-TE-L

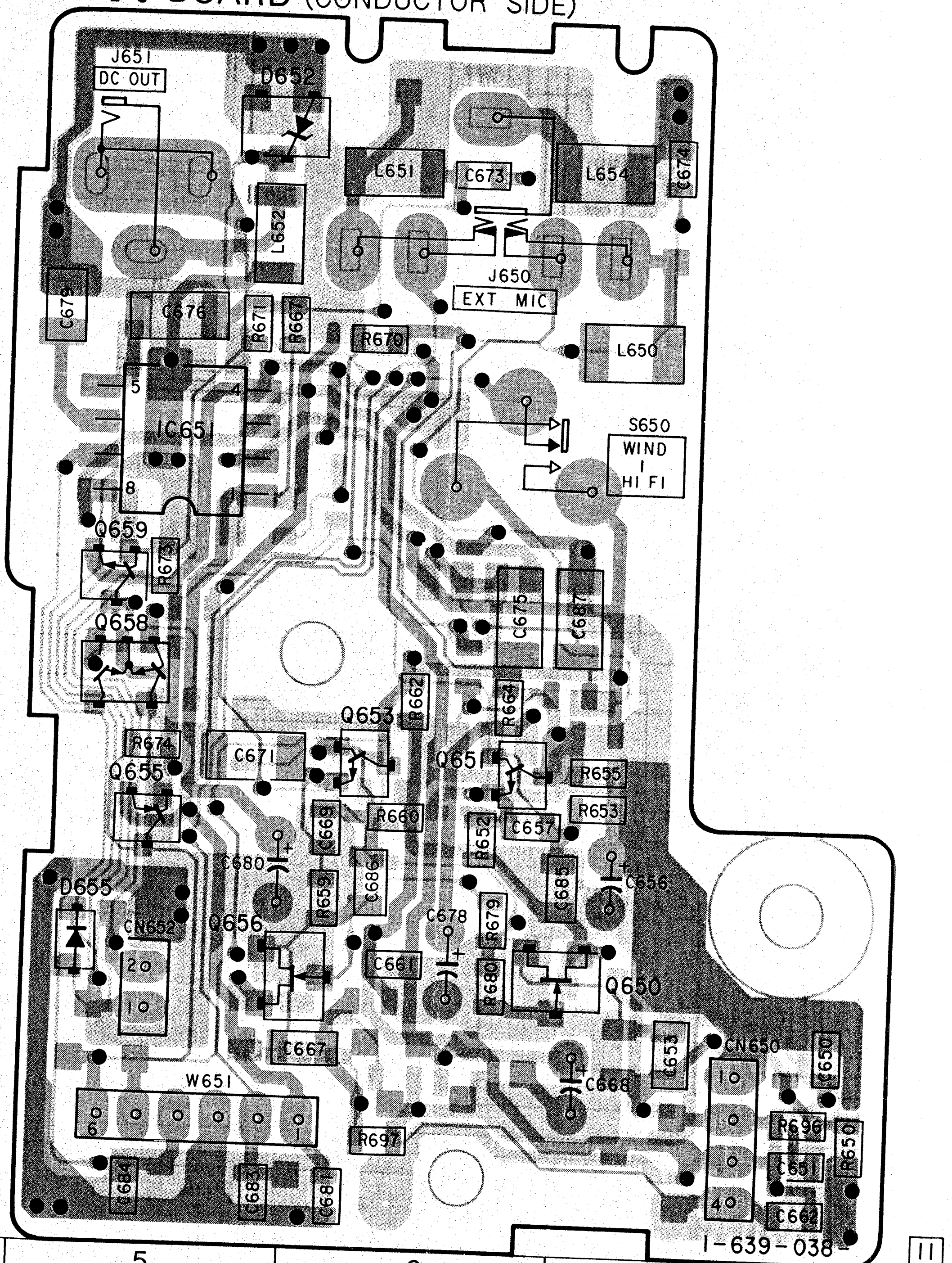
〈 TRANSISTOR 〉

Q650	8-729-109-44	TRANSISTOR	2SK94
Q651	8-729-905-35	TRANSISTOR	2SC4081T106R
Q653	8-729-905-35	TRANSISTOR	2SC4081T106R
Q654	8-729-905-12	TRANSISTOR	DTA144EU
Q655	8-729-905-12	TRANSISTOR	DTA144EU
Q656	8-729-109-44	TRANSISTOR	2SK94
Q657	8-729-905-35	TRANSISTOR	2SC4081T106R
Q658	8-729-904-07	TRANSISTOR	FMG2-T-149
Q659	8-729-905-35	TRANSISTOR	2SC4081T106R

MC-77 BOARD (COMPONENT SIDE)

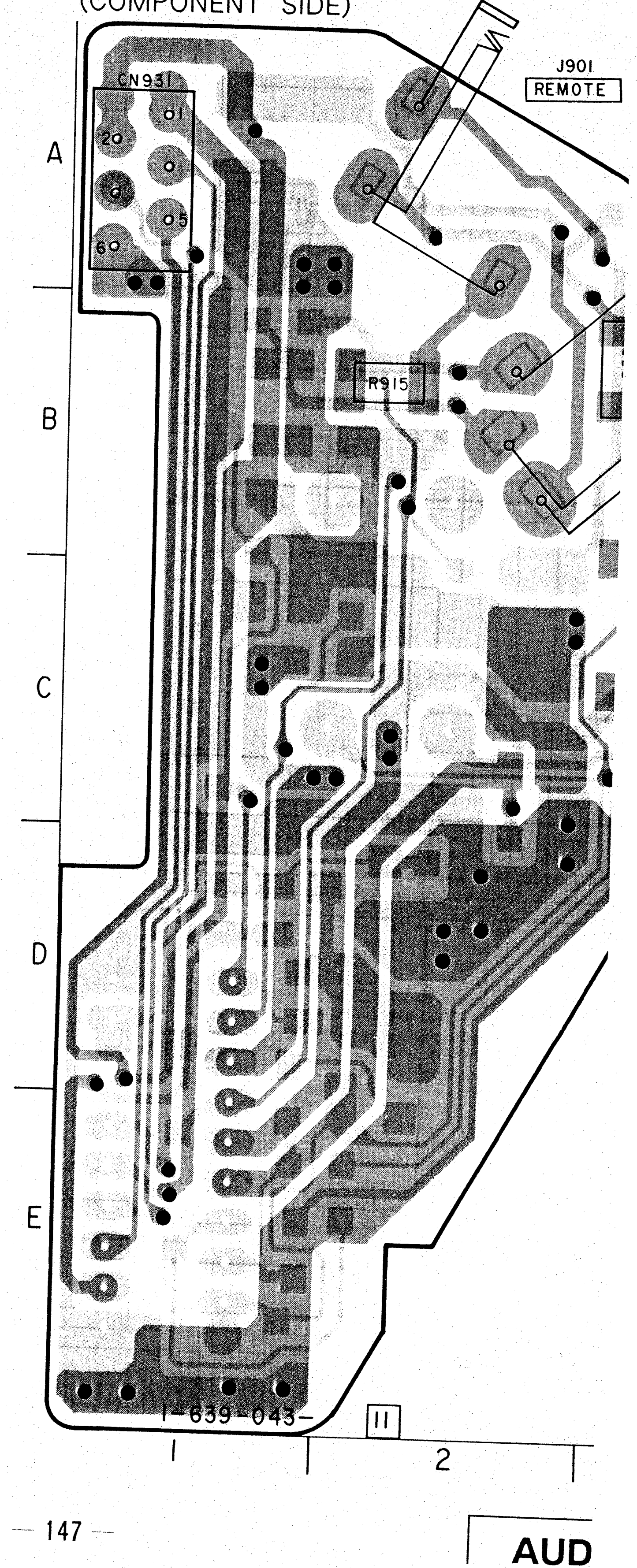

A
B
C
D
1
2
3
4
C677
L653
S651
START/STOP
R672
Q657
R676
IC650
8
5
1
4
Q654
C659
R661
R663
R654
R656
R681
C655
C653
C652
R682
R683
R658
R657
C663
C665
1-639-038-
11
C679
MC-

MC-77 BOARD (CONDUCTOR SIDE)


J651
DC OUT
D652
L651
C673
L654
C674
L652
C679
C676
R671
R667
R670
J650
EXT MIC
L650
IC651
5
4
8
S650
WIND
HI FI
Q659
R673
Q658
C675
C687
R662
R664
Q653
R674
C671
Q651
R655
Q655
C669
R660
R652
C657
R653
C680
C686
R659
C685
C656
D655
CN652
2
1
Q656
C678
R679
C661
R680
Q650
C667
C653
CN650
R650
W651
6
1
4
R697
R696
C684
C683
C681
C651
C662
R650
1-639-038-
11
4
5
6
7

* A-7071-402-A SW-175 BOARD, COMPLETE			
	************************		
	(DIODE)		
D900	8-719-977-34	DIODE	DTZ12
D901	8-719-977-34	DIODE	DTZ12
D902	8-719-404-46	DIODE	MA110
D903	8-719-97		
D904	8-719-97		
D905	8-719-40		
D906	8-719-40		
D907	8-719-40		
D908	8-719-97		

SW-175 BOARD
(COMPONENT SIDE)


CN931
1
2
5
6
J901
REMOTE
R915
A
B
C
D
E
1-639-043-
11
1
2

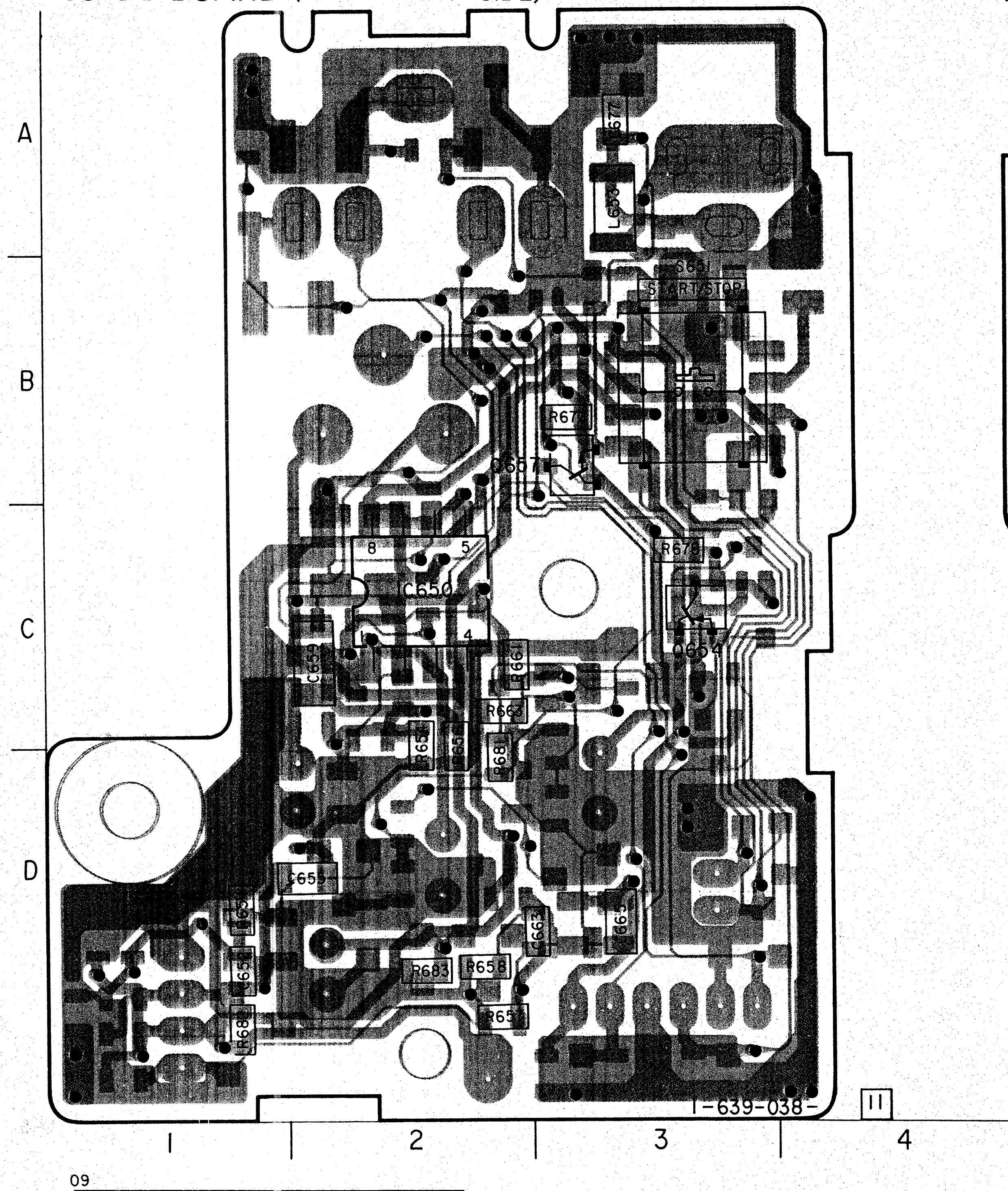
MC-77 (MIC AMP), SW-175 (CAMERA FUNCTION SWITCH) PRINTED WIRING BOARDS

— Ref. No. MC-77 BOARD: 2000 series, SW-175 BOARD: 2000 series —

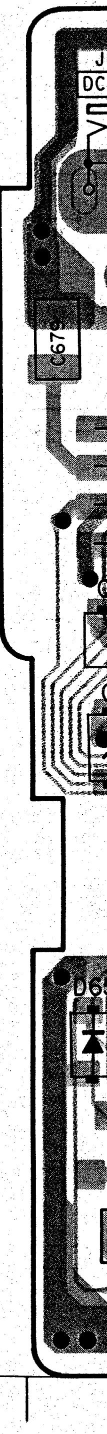
* A-7062-718-A MC-77 BOARD, COMPLETE
****

		(DIODE)	
D652	8-719-106-43	DIODE	RD9.1MB1
D655	8-719-404-46	DIODE	MA110
		(IC)	
IC650	8-759-822-37	IC	LA7293M-TE-L
IC651	8-759-822-37	IC	LA7293M-TE-L
		(TRANSISTOR)	
Q650	8-729-109-44	TRANSISTOR	2SK94
Q651	8-729-905-35	TRANSISTOR	2SC4081T106R
Q653	8-729-905-35	TRANSISTOR	2SC4081T106R
Q654	8-729-905-12	TRANSISTOR	DTA144EU
Q655	8-729-905-12	TRANSISTOR	DTA144EU
Q656	8-729-109-44	TRANSISTOR	2SK94
Q657	8-729-905-35	TRANSISTOR	2SC4081T106R
Q658	8-729-904-07	TRANSISTOR	FMG2-T-149
Q659	8-729-905-35	TRANSISTOR	2SC4081T106R

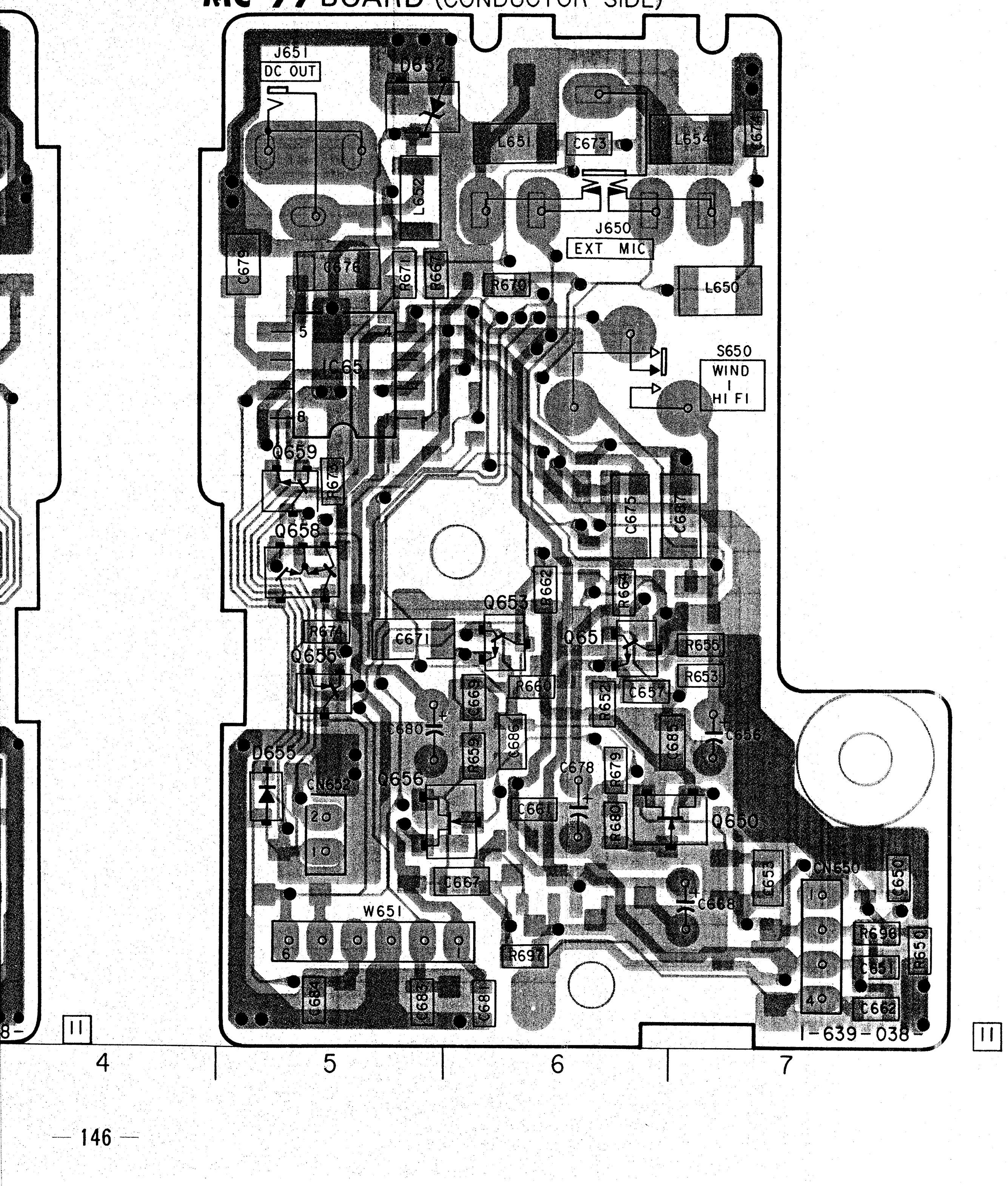
MC-77 BOARD (COMPONENT SIDE)


A
B
C
D
1
2
3
4
S651
START/STOP
R677
Q657
IC650
8
5
4
R678
Q654
C653
R661
R663
R681
C655
R683
R658
R657
C663
1-639-038-
11

MC-7



MC-77 BOARD (CONDUCTOR SIDE)


J651
DC OUT
Q652
L651
C673
L654
C674
L652
J650
EXT MIC
C679
C676
R671
R669
R670
L650
S650
WIND
HI FI
IC651
5
8
Q659
R678
Q658
C675
C687
R662
Q653
R664
R674
C671
Q651
R655
Q655
R653
R660
C657
C680
C669
R652
C656
D655
R659
R686
C678
R679
C685
CN652
Q656
2
1
C661
R680
Q650
C653
C667
CN650
C650
W651
C688
6
1
R698
R697
C651
R650
C684
C683
C681
C662
4
1-639-038-
11
4
5
6
7
8-

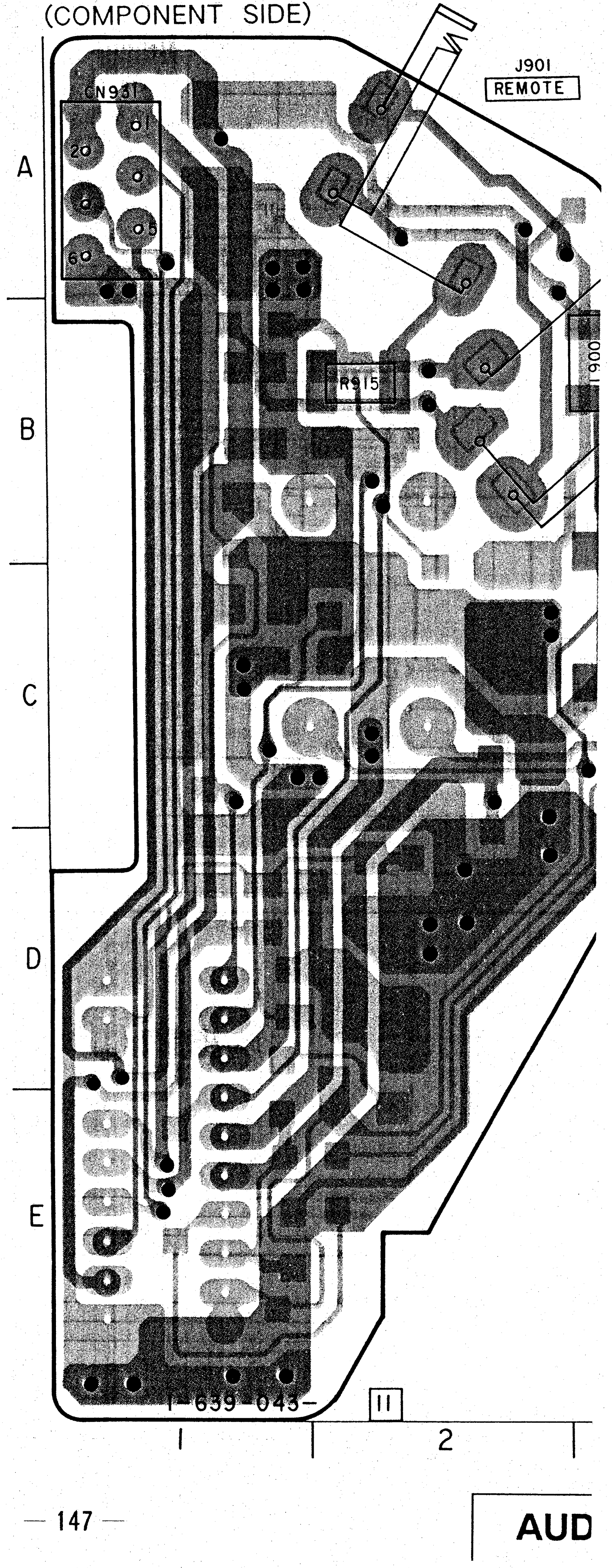
* A-7071-402-A SW-175 BOARD, COMPLETE
****

(DIODE)

D900	8-719-977-34	DIODE	DTZ12
D901	8-719-977-34	DIODE	DTZ12
D902	8-719-404-46	DIODE	MA110

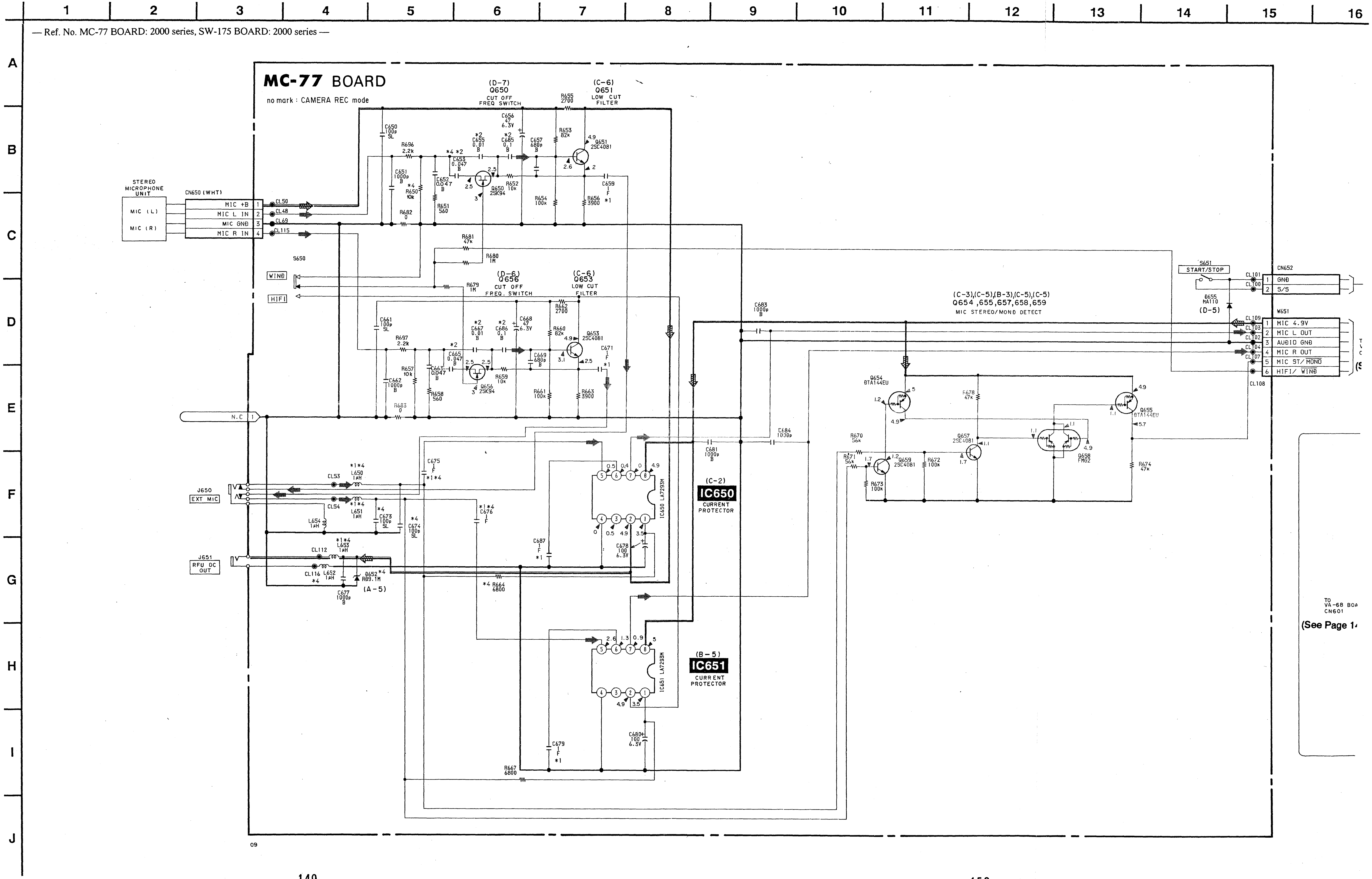
D903	8-719-977-
D904	8-719-977-
D905	8-719-404-
D906	8-719-404-
D907	8-719-404-
D908	8-719-976-

SW-175 BOARD
(COMPONENT SIDE)


J901
REMOTE
CN931
1
2
5
6
R915
D900
A
B
C
D
E
1-639-043-
11
1
2

MC-77 (MIC AMP), SW-175 (CAMERA FUNCTION SWITCH) SCHEMATIC DIAGRAMS

— Ref. No. MC-77 BOARD: 2000 series, SW-175 BOARD: 2000 series —


1
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8
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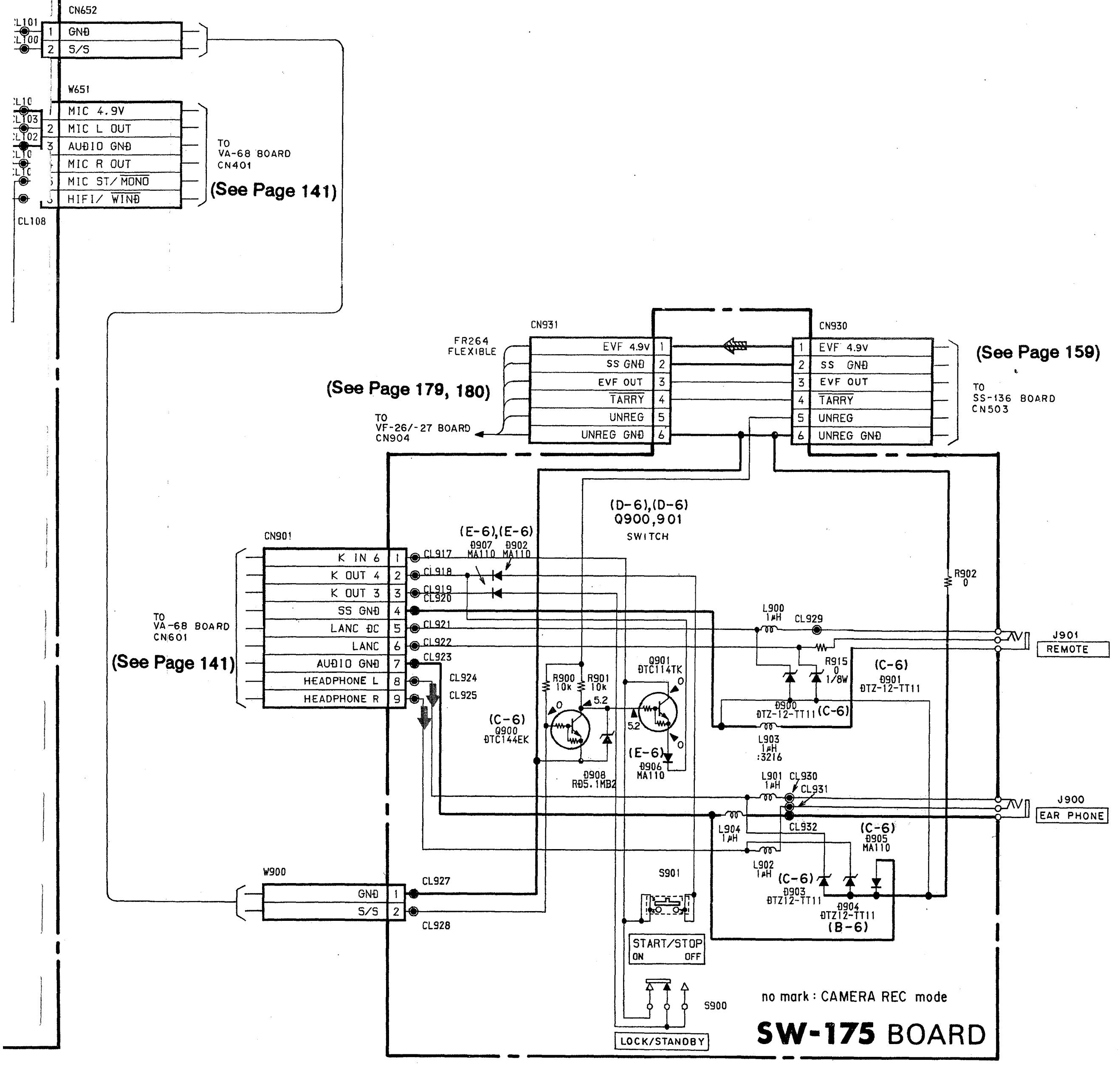
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
MC-77 BOARD
no mark : CAMERA REC mode
STEREO MICROPHONE UNIT
MIC (L)
MIC (R)
CN650 (WHT)
MIC +B
MIC L IN
MIC GND
MIC R IN
CL50
CL48
CL69
CL115
S650
WIND
HIFI
(D-7) Q650 CUT OFF FREQ SWITCH
(C-6) Q651 LOW CUT FILTER
Q650 2SK94
Q651 2SC4081
(D-6) Q656 CUT OFF FREQ. SWITCH
(C-6) Q653 LOW CUT FILTER
Q656 2SK94
Q653 2SC4081
C650 100p SL
R696 2.2k
C651 1000p B
R650 10k
R682 0
C652 0.047 B
R651 560
C653 0.047 B
C655 0.01 B
C656 47 6.3V
C685 0.1 B
C657 680p B
R652 10k
R655 2700
R653 82k
R654 100k
R656 3900
C659 1 F
R681 47k
R680 1M
R679 1M
C661 100p SL
R697 2.2k
C662 1000p B
R657 10k
C663 0.047 B
R658 560
R683 0
C665 0.047 B
C667 0.01 B
C686 0.1 B
C668 47 6.3V
C669 680p B
R659 10k
R662 2700
R660 82k
R661 100k
R663 3900
C671 1 F
N.C
J650 EXT MIC
J651 RFU DC OUT
CL53
L650 1μH
CL54
L651 1μH
L654 1μH
C673 100p SL
C674 100p SL
C675 1 F
C676 1 F
CL112
L653 1μH
CL116
L652 1μH
D652 RB9.1M
(A-5)
C677 1000p B
R664 6800
C687 1 F
IC650 LA7293M
(C-2) IC650 CURRENT PROTECTOR
C678 100 6.3V
(B-5) IC651 CURRENT PROTECTOR
IC651 LA7293M
C679 1 F
C680 100 6.3V
R667 6800
C681 1000p B
C683 1000p B
C684 1000p
(C-3),(C-5),(B-3),(C-5),(C-5)
Q654 ,655,657,658,659
MIC STEREO/MONO DETECT
Q654 BTA144EU
Q655 BTA144EU
Q657 2SC4081
Q658 FMG2
Q659 2SC4081
R670 56k
R671 56k
R672 100k
R673 100k
R674 47k
R678 47k
S651 START/STOP
D655 MA110
(D-5)
CN652
GND
S/S
CL101
CL100
W651
MIC 4.9V
MIC L OUT
AUDIO GND
MIC R OUT
MIC ST/MONO
HIFI/ WIND
CL109
CL103
CL102
CL104
CL107
CL108
TO VA-68 BOA
CN601
(See Page 1
09

- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA/DATA	
REC				➡
PB				⇨


CN652
CL101
CL100
1 GND
2 S/S
W651
1 MIC 4.9V
2 MIC L OUT
3 AUDIO GND
MIC R OUT
MIC ST/MONO
HIFI/ WIND
CL103
CL102
CL108
TO
VA-68 BOARD
CN401
(See Page 141)
CN931
FR264
FLEXIBLE
EVF 4.9V 1
SS GND 2
EVF OUT 3
TARRY 4
UNREG 5
UNREG GND 6
(See Page 179, 180)
TO
VF-26/-27 BOARD
CN904
CN930
1 EVF 4.9V
2 SS GND
3 EVF OUT
4 TARRY
5 UNREG
6 UNREG GND
(See Page 159)
TO
SS-136 BOARD
CN503
CN901
K IN 6 1
K OUT 4 2
K OUT 3 3
SS GND 4
LANC DC 5
LANC 6
AUDIO GND 7
HEADPHONE L 8
HEADPHONE R 9
TO
VA-68 BOARD
CN601
(See Page 141)
CL917
CL918
CL919
CL920
CL921
CL922
CL923
CL924
CL925
(E-6),(E-6)
D907 D902
MA110 MA110
(D-6),(D-6)
Q900,901
SWITCH
R900 10k
R901 10k
5.2
0
Q901
DTC114TK
(C-6)
Q900
DTC144EK
(E-6)
D906
MA110
D908
RD5.1MB2
L900 1µH
CL929
R915 0 1/8W
(C-6)
D901
DTZ-12-TT11
D900
DTZ-12-TT11 (C-6)
L903 1µH :3216
R902 0
J901
REMOTE
L901 1µH
CL930
CL931
J900
EAR PHONE
L904 1µH
CL932
(C-6)
D905
MA110
L902 1µH
(C-6)
D903
DTZ12-TT11
D904
DTZ12-TT11
(B-6)
W900
GND 1
S/S 2
CL927
CL928
S901
START/STOP
ON OFF
S900
LOCK/STANDBY
no mark : CAMERA REC mode
SW-175 BOARD

* A-7062-713-A SS-136 (C) BOARD, COMPLETE
****

〈 DIODE 〉

D501	8-719-941-86	DIODE	DAN202U
D506	8-719-941-86	DIODE	DAN202U
D510	8-719-404-46	DIODE	MA110
D901	8-719-938-75	DIODE	SB05-05CP
D902	8-719-938-75	DIODE	SB05-05CP
D903	8-719-938-78	DIODE	SB10-05PCP

〈 IC 〉

IC501	8-752-818-70	IC	CXP80116-826Q
IC502	8-759-148-05	IC	CXA8010M
IC503	8-759-990-55	IC	CXA8006M
IC504	8-759-805-06	IC	CXA1127M
IC506	8-752-035-48	IC	CXA1204Q

〈 TRANSISTOR 〉

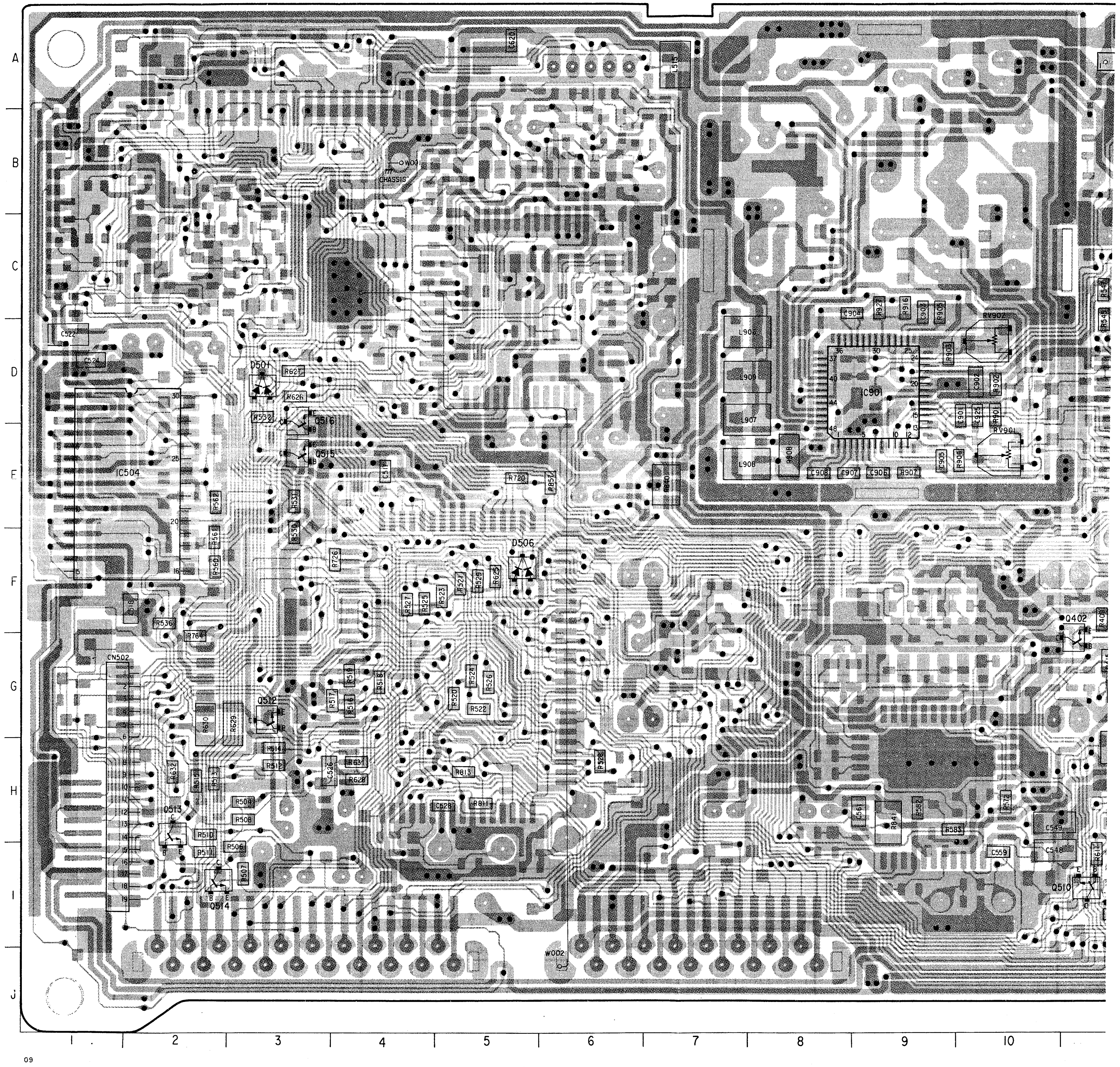
Q400	8-729-905-35	TRANSISTOR	2SC4081R
Q401	8-729-905-35	TRANSISTOR	2SC4081R
Q402	8-729-905-35	TRANSISTOR	2SC4081R
Q403	8-729-905-35	TRANSISTOR	2SC4081R
Q404	8-729-905-35	TRANSISTOR	2SC4081R
Q502	8-729-905-35	TRANSISTOR	2SC4081R
Q503	8-729-905-24	TRANSISTOR	2SA1576S
Q505	8-729-905-35	TRANSISTOR	2SC4081R
Q506	8-729-905-24	TRANSISTOR	2SA1576S
Q507	8-729-905-35	TRANSISTOR	2SC4081R
Q508	8-729-905-24	TRANSISTOR	2SA1576S
Q509	8-729-905-35	TRANSISTOR	2SC4081R
Q510	8-729-905-35	TRANSISTOR	2SC4081R
Q511	8-729-905-24	TRANSISTOR	2SA1576S
Q512	8-729-907-00	TRANSISTOR	DTC114EU
Q513	8-729-905-35	TRANSISTOR	2SC4081R
Q514	8-729-905-35	TRANSISTOR	2SC4081R
Q515	8-729-905-18	TRANSISTOR	DTC144EU
Q516	8-729-905-18	TRANSISTOR	DTC144EU
Q540	8-729-822-48	TRANSISTOR	FC101
Q901	8-729-805-25	TRANSISTOR	2SB1121
Q902	8-729-805-25	TRANSISTOR	2SB1121
Q903	8-729-805-25	TRANSISTOR	2SB1121
Q904	8-729-820-47	TRANSISTOR	2SB1202FAT
Q905	8-729-905-35	TRANSISTOR	2SC4081R

SS-136 (SERVO/SYSTEM CONTROL), RP-77 (VIDEO HEAD AMP) PRINTED WIRING BOARDS

— Ref. No. SS-136 BOARD: 3000 series —

RP-77 board is replaced as a block, so that the PRINTED WIRING BOARD of it is omitted.

SS-136 BOARD (COMPONENT SIDE)


A
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I
J
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9
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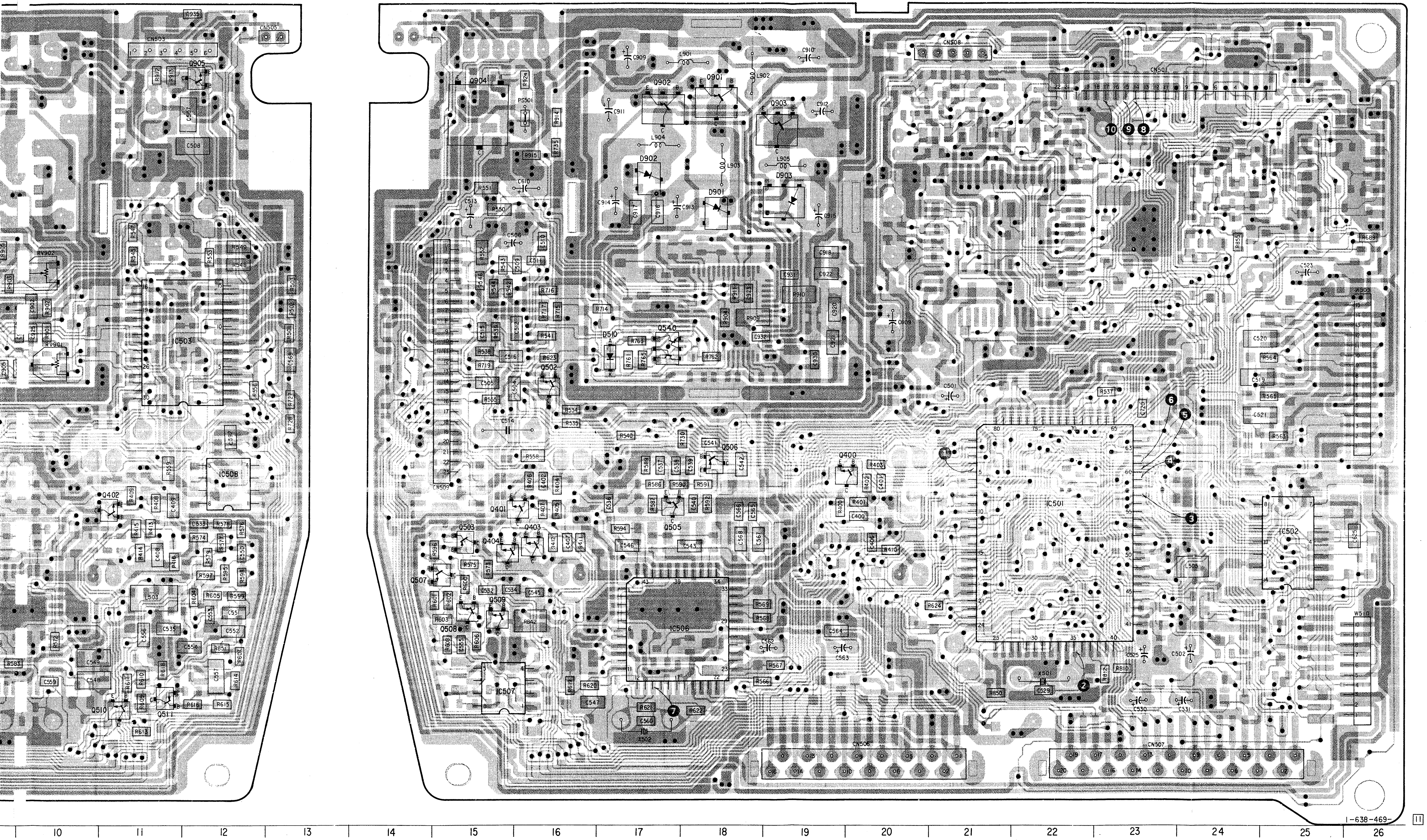
IC504
CN502
D501
D506
R621
R626
R532
Q516
Q515
R720
Q512
Q513
Q514
CHASSIS
W002
L905
L906
L907
L908
IC901
RV901
RV902
Q402
Q510
C522
C524
C548
C549
C559
R583
09

SS-136 BOARD (CONDUCTOR SIDE)


CN503
CN505
CN508
CN501
CN506
CN507
IC501
IC502
IC503
IC506
IC507
IC508
W510
1-638-469-
11
10
11
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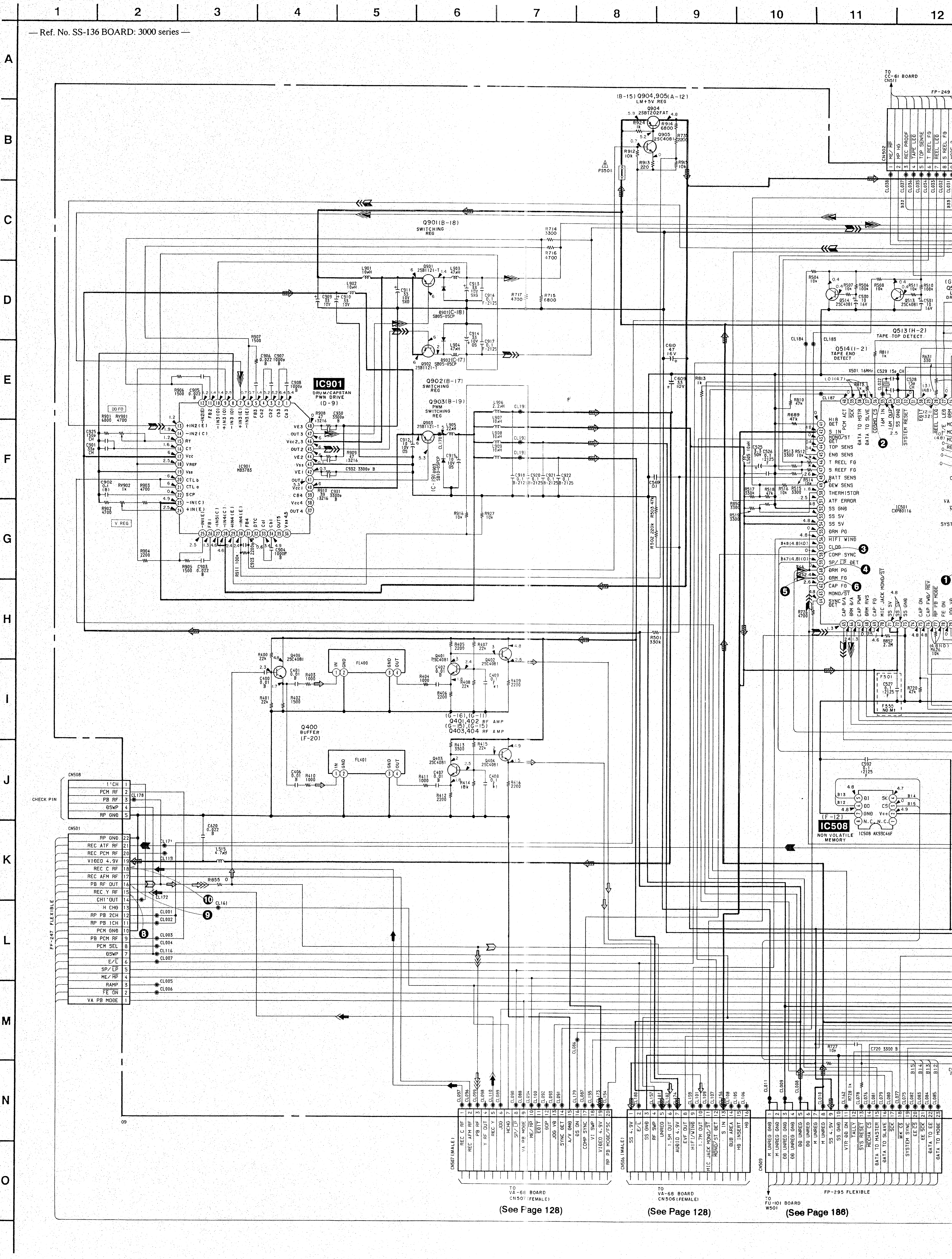
26

SS-136 (SERVO/SYSTEM CONTROL), RP-77 (VIDEO HEAD AMP) SCHEMATIC DIAGRAMS

— Ref. No. SS-136 BOARD: 3000 series —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A
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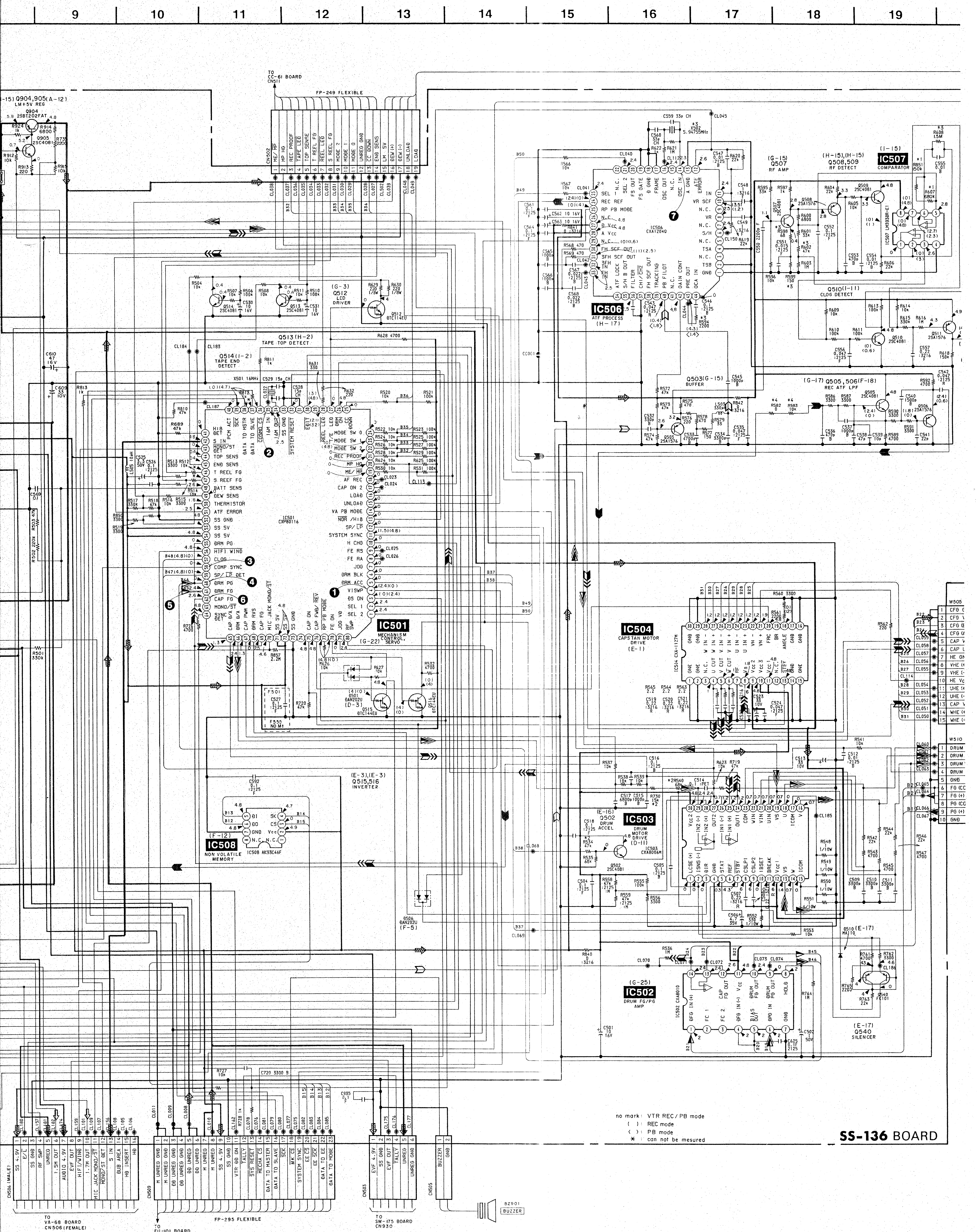
D
E
F
G
H
I
J
K
L
M
N
O
TO CC-61 BOARD CN511
FP-249
(B-15) Q904,905(A-12) LM+5V REG
Q904 2SB1202FAT
Q905 2SC4081
PS501
Q901(B-18) SWITCHING REG
Q902(B-17) SWITCHING REG
Q903(B-19) PWM SWITCHING REG
D901(C-18) SB05-05CP
D902(C-17) SB05-05CP
IC901 DRUM/CAPSTAN PWN DRIVE (D-9)
IC901 MB3783
DD FO
V REG
Q400 BUFFER (F-20)
FL400
FL401
(G-16),(G-11) Q401,402 RF AMP (G-15),(G-15) Q403,404 RF AMP
CN508
CHECK PIN
1'CH
PCM RF
PB RF
DSWP
RP GND
CN501
FP-247 FLEXIBLE
RP GND
REC ATF RF
REC PCM RF
VIDEO 4.9V
REC C RF
REC AFM RF
PB RF OUT
REC Y RF
CH1'OUT
H CHG
RP PB 2CH
RP PB 1CH
PCM GND
PB PCM RF
PCM SEL
DSWP
E/L
SP/LP
ME/MP
RAMP
FE ON
VA PB MODE
Q514(I-2) TAPE END DETECT
Q513(H-2) TAPE TOP DETECT
IC501 CXP80116
IC508 NON VOLATILE MEMORY
IC508 AK93C46F
X501 16MHz
CN507 (MALE)
TO VA-68 BOARD CN507 (FEMALE)
(See Page 128)
CN506 (MALE)
TO VA-68 BOARD CN506 (FEMALE)
(See Page 128)
CN509
TO FU-101 BOARD W501
FP-295 FLEXIBLE
(See Page 186)


9
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11
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14
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17
18
19
Q904,905(A-12) LM+5V REG
Q904 2SB1202FAT
Q905 2SC4081
TO CC-61 BOARD CN511
FP-249 FLEXIBLE
CN502
ME/MP
MP HG
REC PROOF
TAPE LED
TOP SENSE
T REEL FG
REEL LED
S REEL FG
MODE 2
MODE 1
MODE 0
UNREG GND
CC DOWN
END SENS
LM 5V
DEW (+)
DEW (-)
UNLOAD
LOAD
(G-3) Q512 LCD DRIVER
Q512 DTC114EU
Q514 2SC4081
Q513 2SC4081
Q513(H-2) TAPE TOP DETECT
Q514(I-2) TAPE END DETECT
X501 16MHz
IC501 CXP80116
IC501 MECHANISM CONTROL SERVO (G-22)
H18 DET
PCM ACT
SEEK
DATA TO MSTR
DATA TO SLVE
S IN
MONO/ST DET
TOP SENS
END SENS
T REEL FG
S REEF FG
BATT SENS
DEW SENS
THERMISTOR
ATF ERROR
SS GND
SS 5V
DRM PG
HIFI WIND
CLOG
COMP SYNC
SP/LP DET
DRM PG
DRM FG
CAP FG
MONO/ST
SYNC B/A DET
CAP B/A
DRM B/A
CAP PWM
DRM RVS
CAP FG
MIC JACK MONO/ST
SS 5V
SS GND
CAP ON
CAP FWD/REV
RP PB MODE
FE ON
JOG VD
SWP
VISWP
DS ON
SEL 1
SEL 2
DRM ACC
DRM BLK
JOG
FE RA
FE RS
H CHG
SYSTEM SYNC
SP/LP
NOR/H18
VA PB MODE
UNLOAD
LOAD
CAP ON 2
AF REC
ME/MP
MP HG
REC PROOF
MODE SW 2
MODE SW 1
MODE SW 0
REEL LED
EDIT
SYSTEM RESET
16M IN
16M OUT
SS GND
D501 DAN202U (D-3)
Q515 DTC144EU
Q516 DTC144EU
(E-3),(E-3) Q515,516 INVERTER
F501
F555 NO MT
(F-12) IC508 NON VOLATILE MEMORY
IC508 AK93C46F
DI
DO
GND
SK
CS
Vcc
N.C.
IC506 CXA1204Q
IC506 ATF PROCESS (H-17)
SEL 1
REC REF
RP PB MODE
D Vcc
A Vcc
FH SCF OUT
3FH SCF OUT
3FH IN
ATF LOCK
S/H B OUT
FILTER
FH SCF OUT
TRACKING
PB PILOT
GAIN CONT
PRE OUT
GCA IN
N.C.
SEL 2
FS GATE
D GND
FRAME
OSC OUT
OSC IN
A GND
ATF ERROR
VR SCF
S/H
TSA
TSB
GND
X502 5.94755MHz
(G-15) Q507 RF AMP
Q507 2SC4081
Q508 2SA1576
Q509 2SC4081
(H-15),(H-15) Q508,509 RF DETECT
(I-15) IC507 COMPARATOR
IC507 LM393R-E1
Q510(I-11) CLOG DETECT
Q510 2SC4081
Q511 2SA1576
Q503(G-15) BUFFER
Q503 2SA1576
(G-17) Q505,506(F-18) REC ATF LPF
Q505 2SC4081
Q506 2SA1576
IC504 CAPSTAN MOTOR DRIVE (E-1)
IC504 CXA-1127M
W505
CFG
CAP
HE GN
VHE
HE Vc
UHE
WHE
W510
DRUM
GND
FG (+)
PG (+)
(E-16) Q502 DRUM ACCEL
Q502 2SC4081
IC503 DRUM MOTOR DRIVE (D-11)
IC503 CXA8006M
(G-25) IC502 DRUM FG/PG AMP
IC502 CXA8010
CAP FG OUT
Vcc
DRUM FG OUT
DRUM PG OUT
HOLD
GND
DFG IN
FC 1
FC 2
DFG IN (-)
BIAS OUT
DPG IN
Q510 (E-17) MA110
(E-17) Q540 SILENCER
Q540 FC101
D506 DAN202U (F-5)
CN506 (MALE)
SS 4.9V
E/L
SS GND
RF SWP
1.5M OUT
AUDIO 4.9V
EVF OUT
HIFI/WIND
1.7M OUT
MIC JACK MONO/ST
MONO/ST DET
S IN
SUB AREA
HB INSERT
H8
CN509
M UNREG GND
DD UNREG GND
DD UNREG
M UNREG
SS 4.9V
SS GND
VTR DD ON
TALLY
SYS RESET
MECHA CS
DATA TO MASTER
DATA TO SLAVE
SCK
MK CS
SYSTEM SYNC
EE CS
EE SCK
DATA TO EE
DATA TO MODE
FP-295 FLEXIBLE
CN503
EVF 4.9V
EVF OUT
TALLY
UNREG
UNREG GND
CN505
BUZZER
GND
BZ901 BUZZER
TO VA-68 BOARD CN506(FEMALE)
TO FU-101 BOARD W501
TO SW-175 BOARD CN930

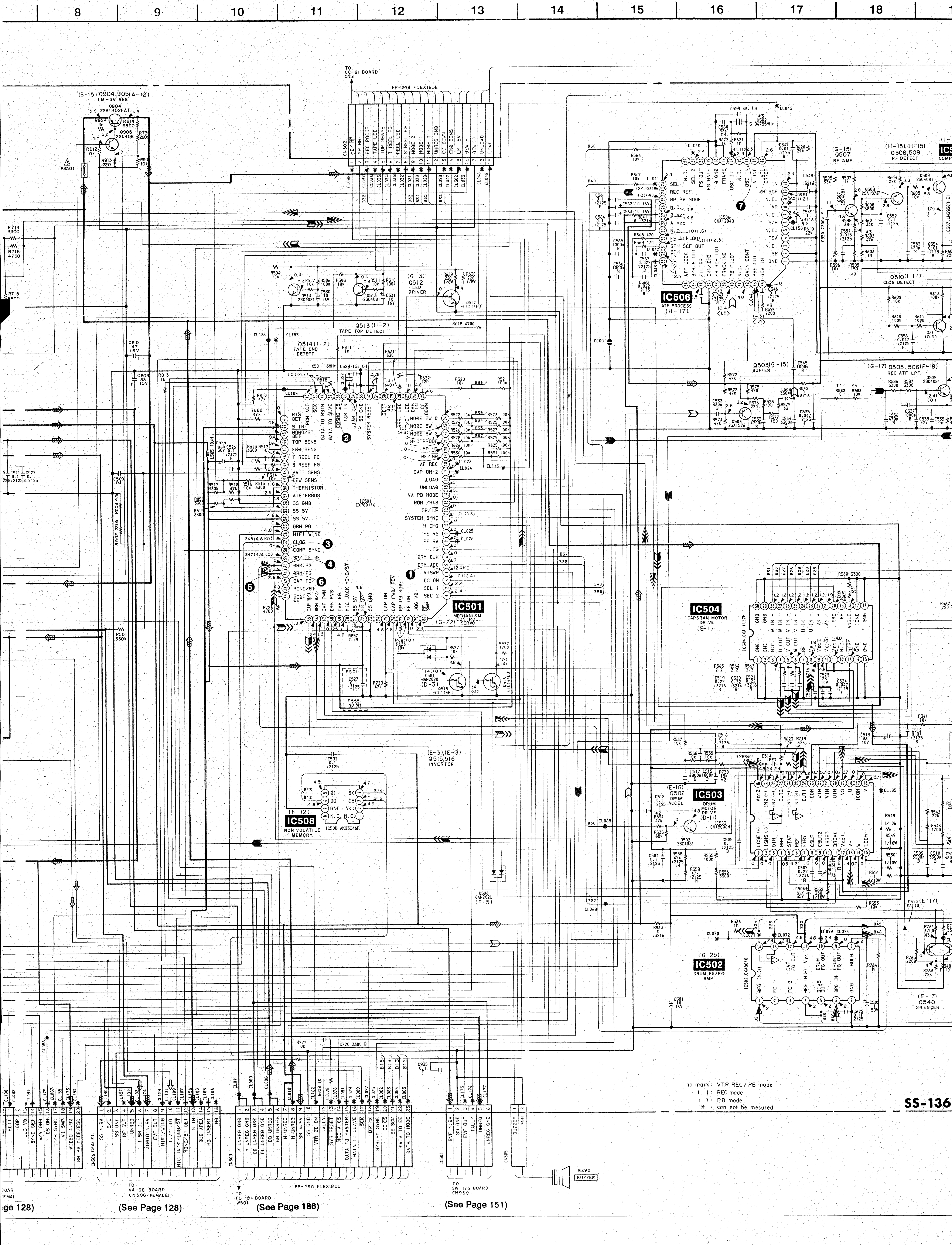
no mark : VTR REC/PB mode
( ) : REC mode
< > : PB mode
* : can not be mesured

SS-136 BOARD

(See Page 128)

(See Page 186)

(See Page 151)


8
9
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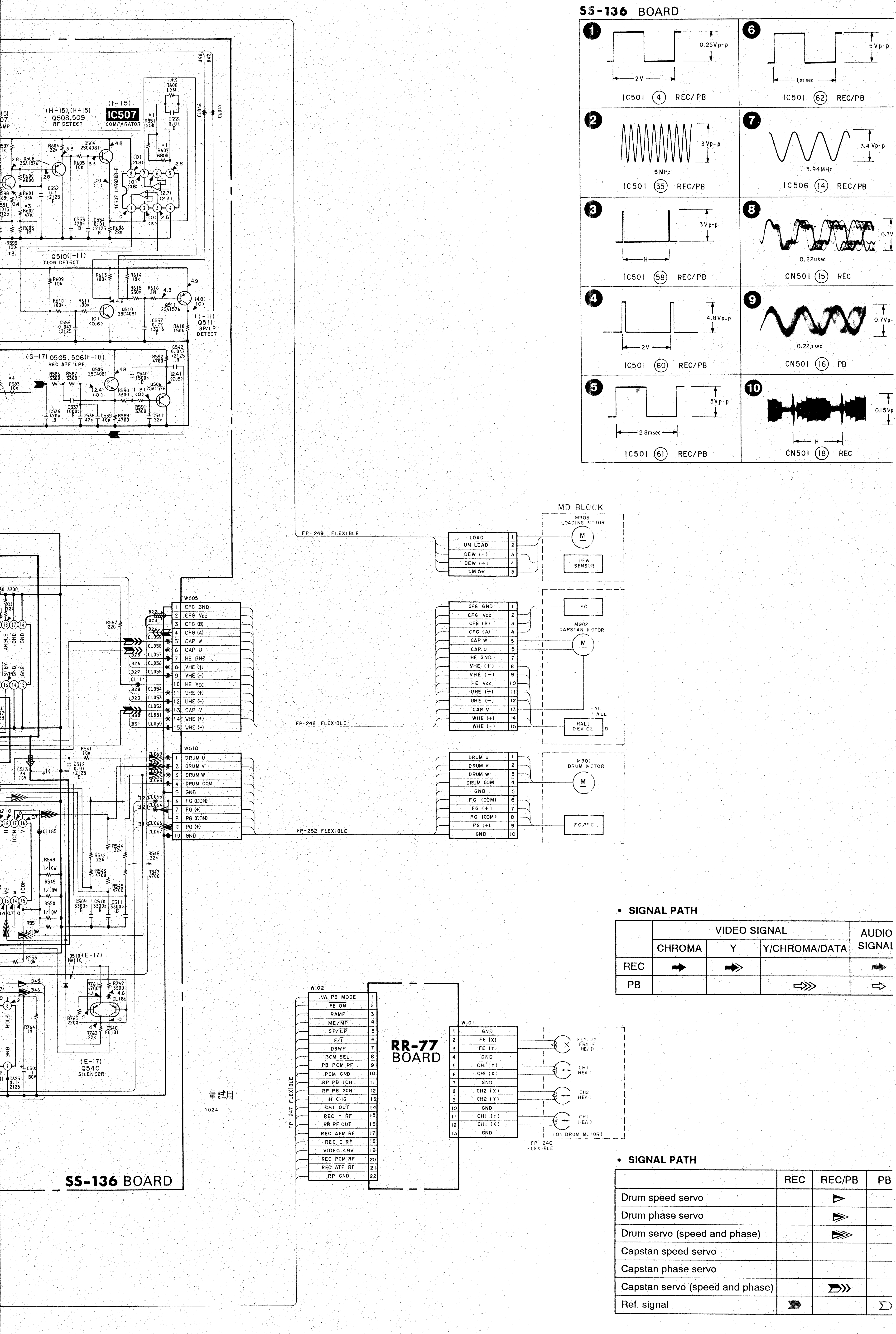
16
17
18
TO CC-61 BOARD CN511
FP-249 FLEXIBLE
(B-15) Q904,905(A-12) LM+5V REG
Q904 2SB1202FAT
Q905 2SC4081
PS501
IC501 CXP80116
MECHANISM CONTROL, SERVO (G-22)
IC506 CXA1204Q ATF PROCESS (H-17)
IC504 CAPSTAN MOTOR DRIVE (E-1)
IC503 DRUM MOTOR DRIVE (D-11)
IC502 DRUM FG/PG AMP (G-25)
IC508 NON VOLATILE MEMORY (F-12) IC508 AK93C46F
(G-3) Q512 LED DRIVER
Q514 (I-2) TAPE END DETECT
Q513 (H-2) TAPE TOP DETECT
(E-31),(E-3) Q515,516 INVERTER
(E-16) Q502 DRUM ACCEL
Q503 (G-15) BUFFER
(G-15) Q507 RF AMP
(H-15),(H-15) Q508,509 RF DETECT
Q510 (I-11) CLOG DETECT
(G-17) Q505,506 (F-18) REC ATF LPF
Q510 (E-17)
(E-17) Q540 SILENCER
D506 DAN202U (F-5)
X501 16MHz
X502 5.94755MHz
CN506 (MALE)
TO VA-68 BOARD CN506 (FEMALE)
(See Page 128)
CN509
FP-295 FLEXIBLE
TO FU-101 BOARD W501
(See Page 186)
CN503
TO SW-175 BOARD CN930
(See Page 151)
CN505
BZ901 BUZZER
SS-136

no mark : VTR REC / PB mode
( ) : REC mode
⟨ ⟩ : PB mode
* : can not be mesured


SS-136 BOARD
① IC501 ④ REC/PB 0.25Vp-p 2V
② IC501 ㉟ REC/PB 3Vp-p 16MHz
③ IC501 (58) REC/PB 3Vp-p H
④ IC501 (60) REC/PB 4.8Vp-p 2V
⑤ IC501 (61) REC/PB 5Vp-p 2.8msec
⑥ IC501 (62) REC/PB 5Vp-p 1msec
⑦ IC506 ⑭ REC/PB 3.4Vp-p 5.94MHz
⑧ CN501 ⑮ REC 0.3V 0.22usec
⑨ CN501 ⑯ PB 0.7Vp- 0.22μsec
⑩ CN501 ⑱ REC 0.15Vp H
IC507 COMPARATOR
(I-15)
(H-15),(H-15) Q508,509 RF DETECT
Q510(I-11) CLOG DETECT
(I-11) Q511 SP/LP DETECT
(G-17) Q505,506(F-18) REC ATF LPF
(E-17) Q540 SILENCER
Q510 (E-17) MA110
MD BLOCK
M903 LOADING MOTOR
DEW SENSOR
M902 CAPSTAN MOTOR
FG
HALL DEVICE
M901 DRUM MOTOR
FG/PG
FP-249 FLEXIBLE
FP-248 FLEXIBLE
FP-252 FLEXIBLE
FP-247 FLEXIBLE
FP-246 FLEXIBLE
W505
W510
W102
W101
LOAD
UN LOAD
DEW (-)
DEW (+)
LM 5V
CFG GND
CFG Vcc
CFG (B)
CFG (A)
CAP W
CAP U
HE GND
VHE (+)
VHE (-)
HE Vcc
UHE (+)
UHE (-)
CAP V
WHE (+)
WHE (-)
DRUM U
DRUM V
DRUM W
DRUM COM
GND
FG (COM)
FG (+)
PG (COM)
PG (+)
VA PB MODE
FE ON
RAMP
ME/MP
SP/LP
E/L
DSWP
PCM SEL
PB PCM RF
PCM GND
RP PB 1CH
RP PB 2CH
H CHG
CH1 OUT
REC Y RF
PB RF OUT
REC AFM RF
REC C RF
VIDEO 4.9V
REC PCM RF
REC ATF RF
RP GND
FE (X)
FE (Y)
CH1'(Y)
CH1'(X)
CH2 (X)
CH2 (Y)
CH1 (Y)
CH1 (X)
FLYING ERASE HEAD
CH1 HEAD
CH2 HEAD
(ON DRUM MOTOR)
RR-77 BOARD
SS-136 BOARD
量試用
1024

- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA/DATA	
REC	➡	➾		➡
PB			⇨⟫	⇨

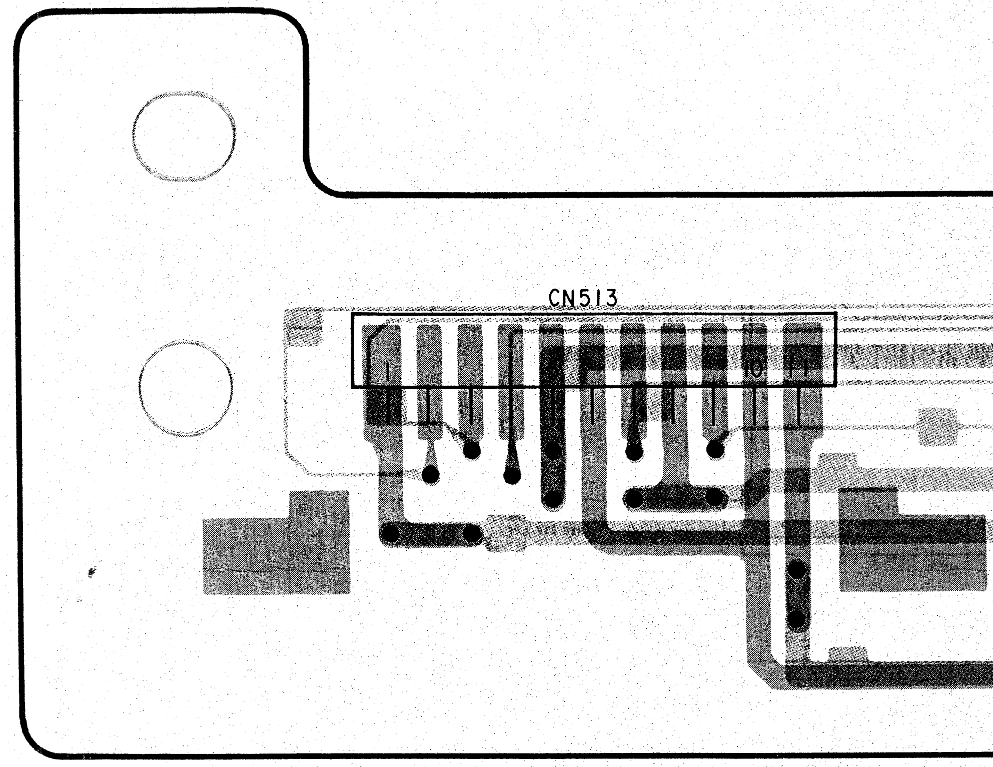
- **SIGNAL PATH**

	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		⊳	
Drum servo (speed and phase)		⊳	
Capstan speed servo			
Capstan phase servo			
Capstan servo (speed and phase)		⊳⟫	
Ref. signal	➧		▷

CC-61 (LINK), FP-89 (SENSOR), FP-90 (SENSOR) PRINTED WIRING BOARDS

— Ref. No. CC-61 BOARD: 10000 series, FP-89 BOARD: 11000 series, FP-90 BOARD: 12000 series —

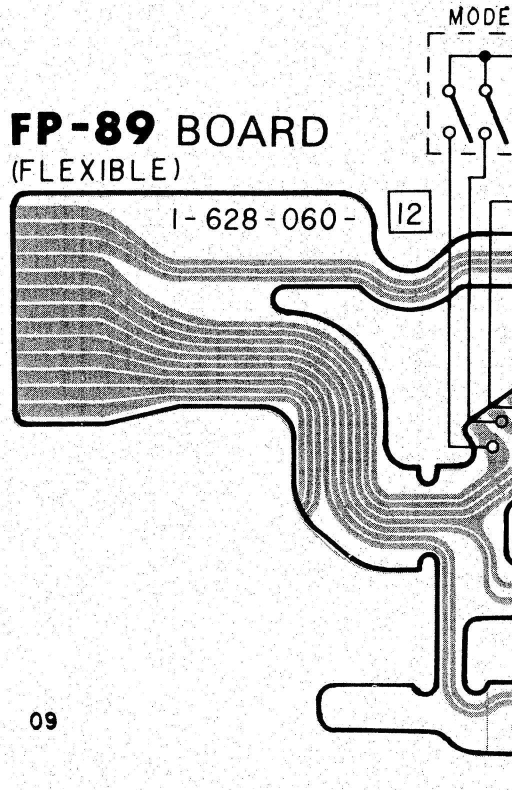
CC-61 BOARD

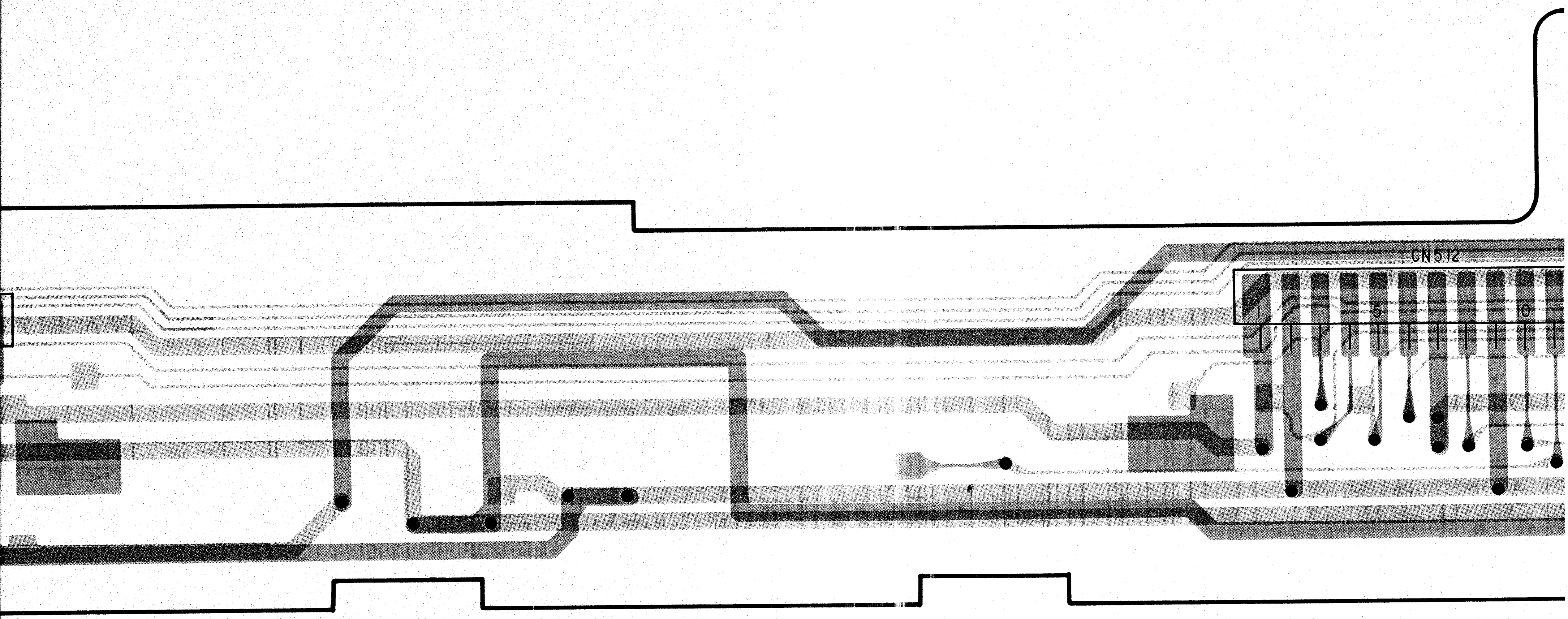


* 1-628-060-12 FP-89 FLEXIBLE BOARD
****

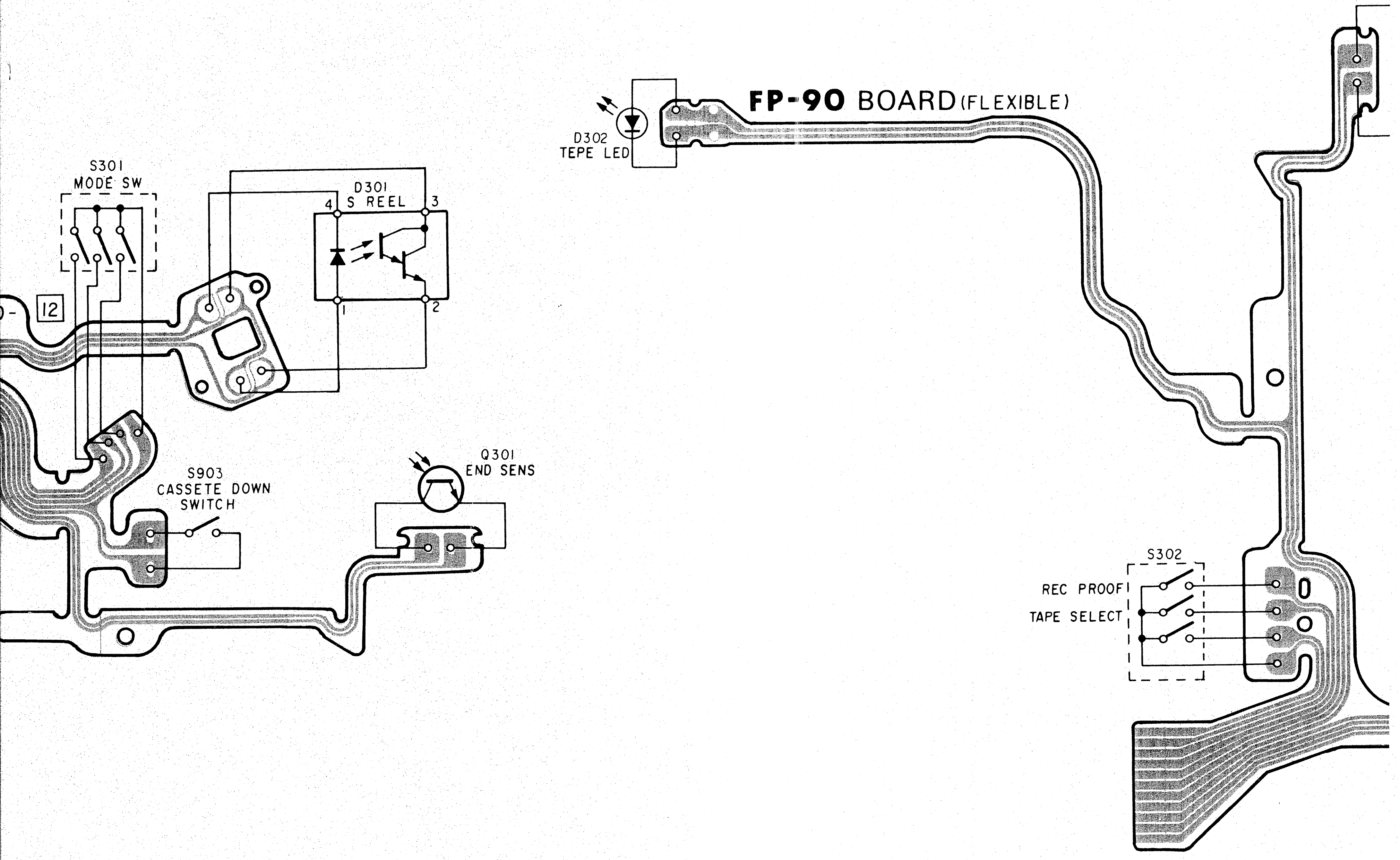
		(DIODE)
D301	8-719-820-44	PHOTO COUPLER TLP907
		(TRANSISTOR)
Q301	8-729-906-48	TRANSISTOR EE-TP109

FP-89 BOARD
(FLEXIBLE)

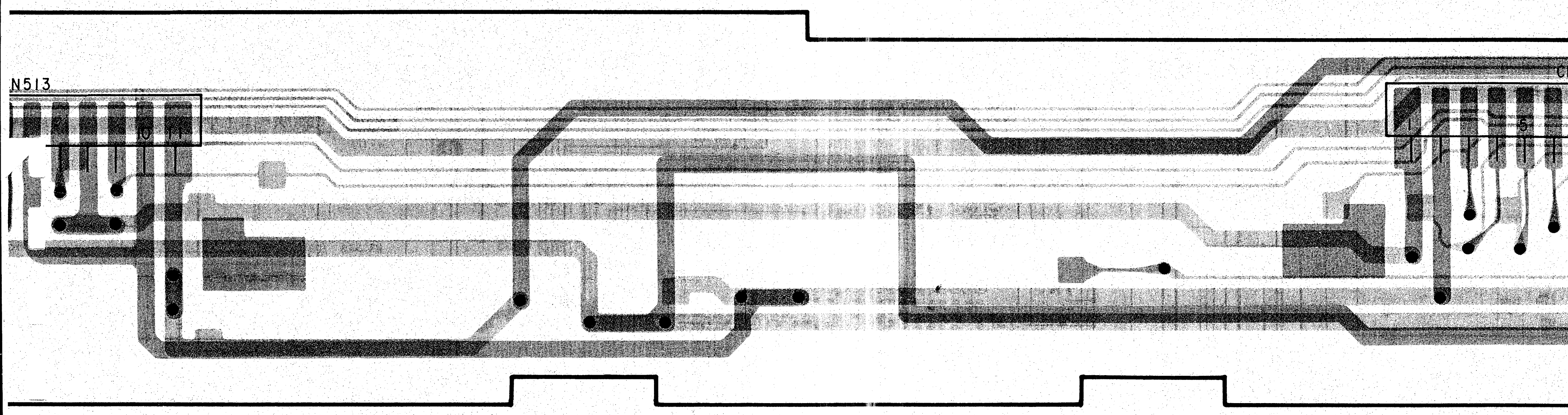


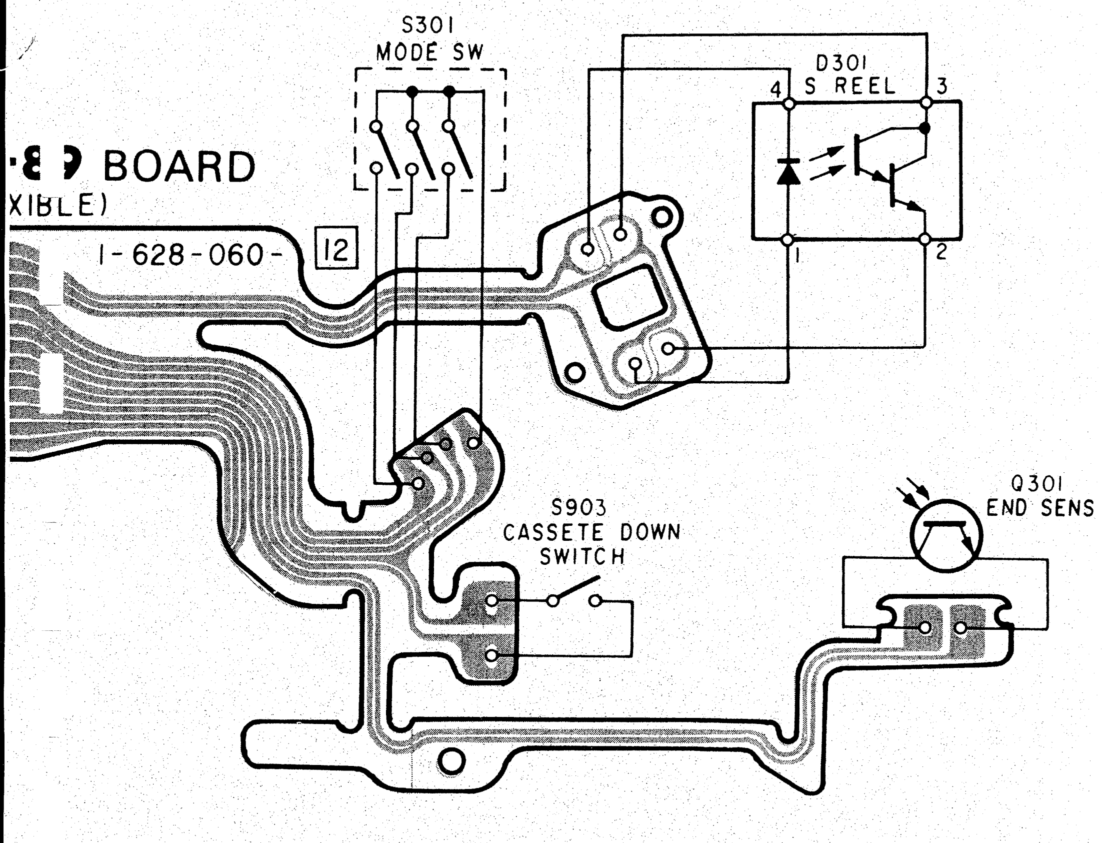


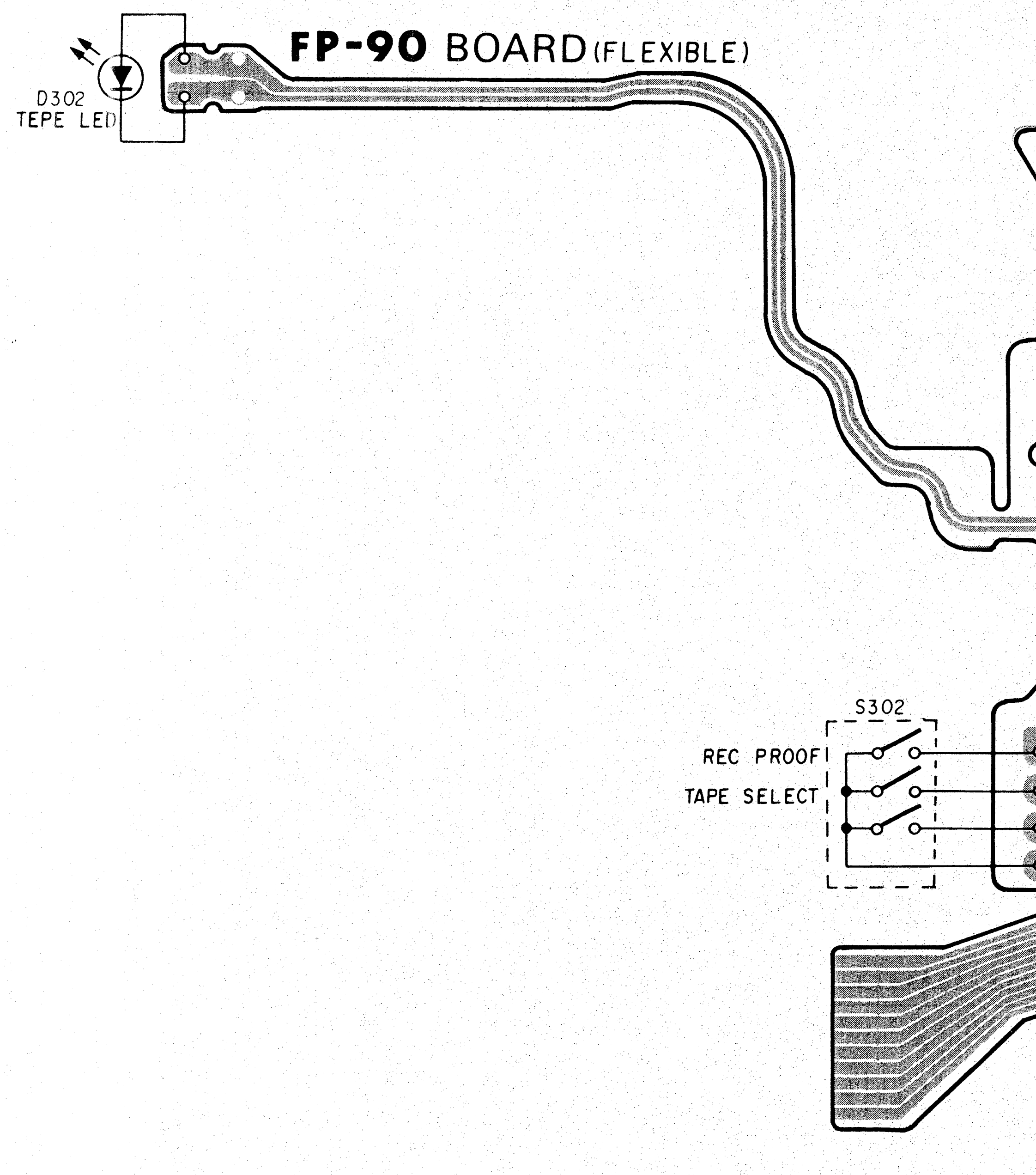
FP-90 BOARD(FLEXIBLE)

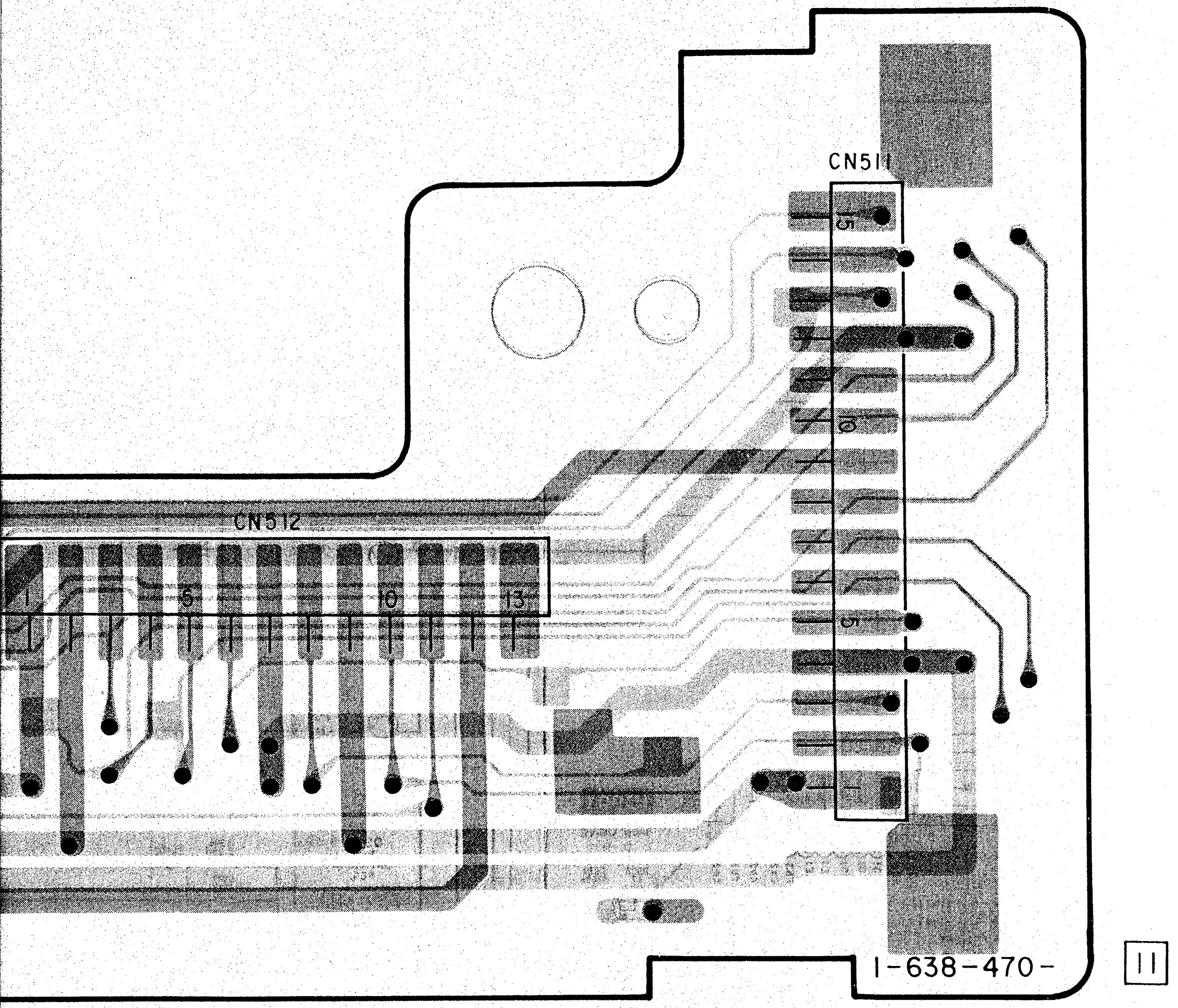

D302
TEPE LED
S301
MODE SW
D301
S REEL
4
3
1
2
12
S903
CASSETE DOWN
SWITCH
Q301
END SENS
S302
REC PROOF
TAPE SELECT

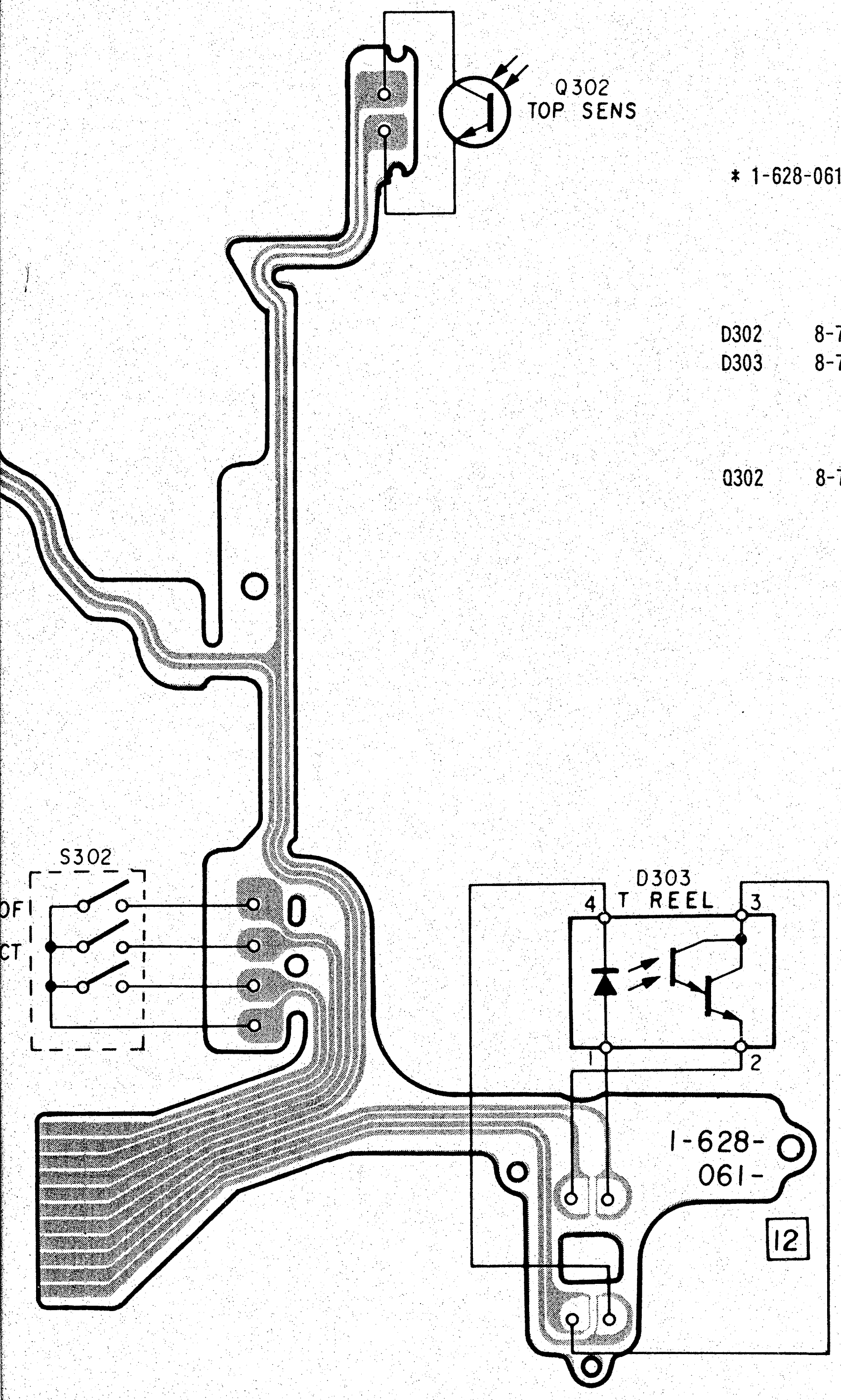
TAPE SENS


N513
C


·8 9 BOARD
XIBLE)
1-628-060-
12
S301
MODE SW
D301
S REEL
4
3
1
2
S903
CASSETE DOWN
SWITCH
Q301
END SENS


FP-90 BOARD(FLEXIBLE)
D302
TEPE LED
S302
REC PROOF
TAPE SELECT


CN511
15
10
5
1
CN512
1
5
10
13
1-638-470-
11


Q302
TOP SENS
S302
OF
CT
D303
T REEL
4
3
1
2
1-628-
061-
12

* 1-628-061-12 FP-90 FLEXIBLE BOARD
****

〈 DIODE 〉

D302	8-719-940-81	DIODE GL452S
D303	8-719-820-44	PHOTO COUPLER TLP-907

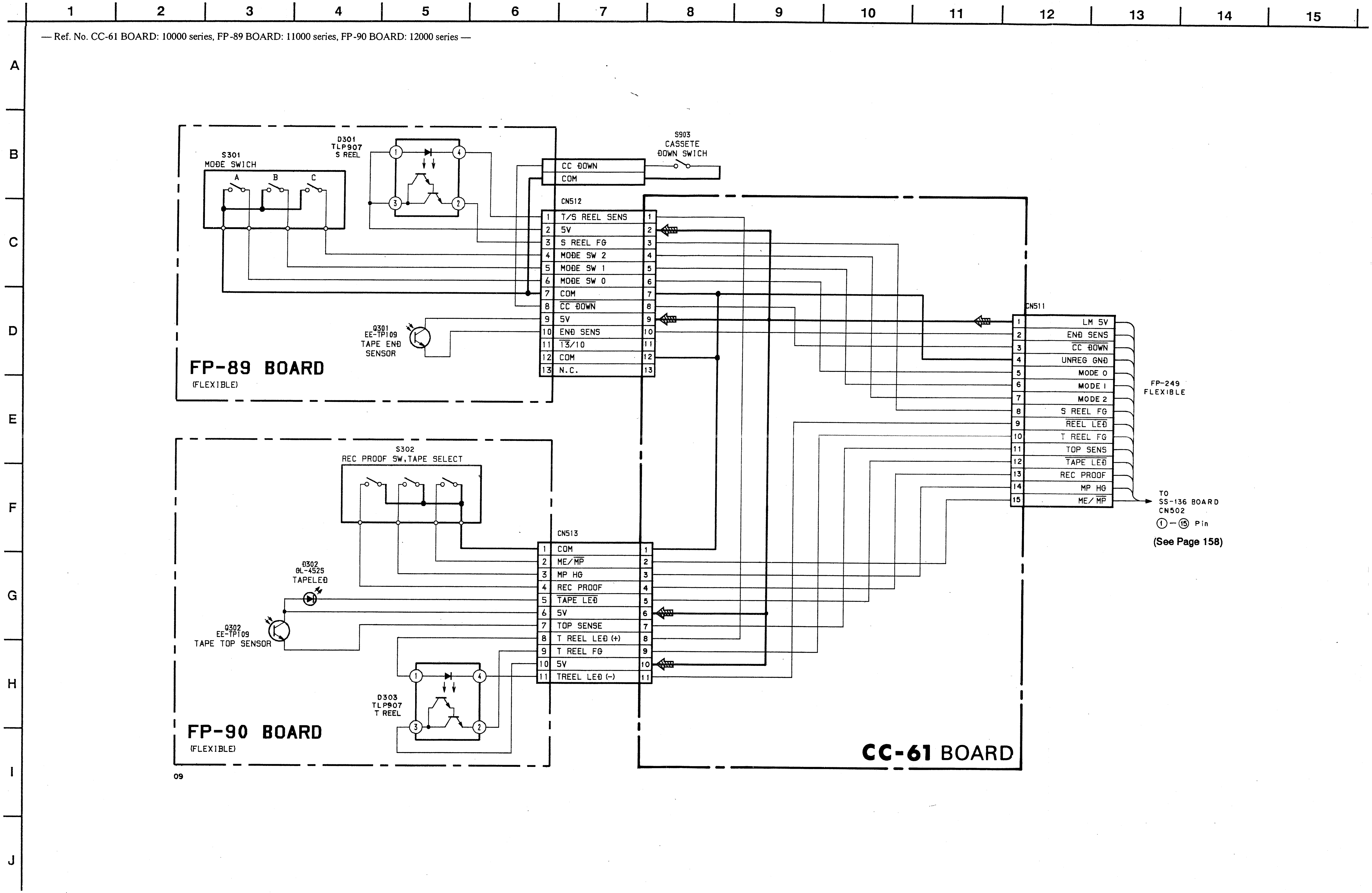
〈 TRANSISTOR 〉

Q302	8-729-906-48	TRANSISTOR EE-TP109

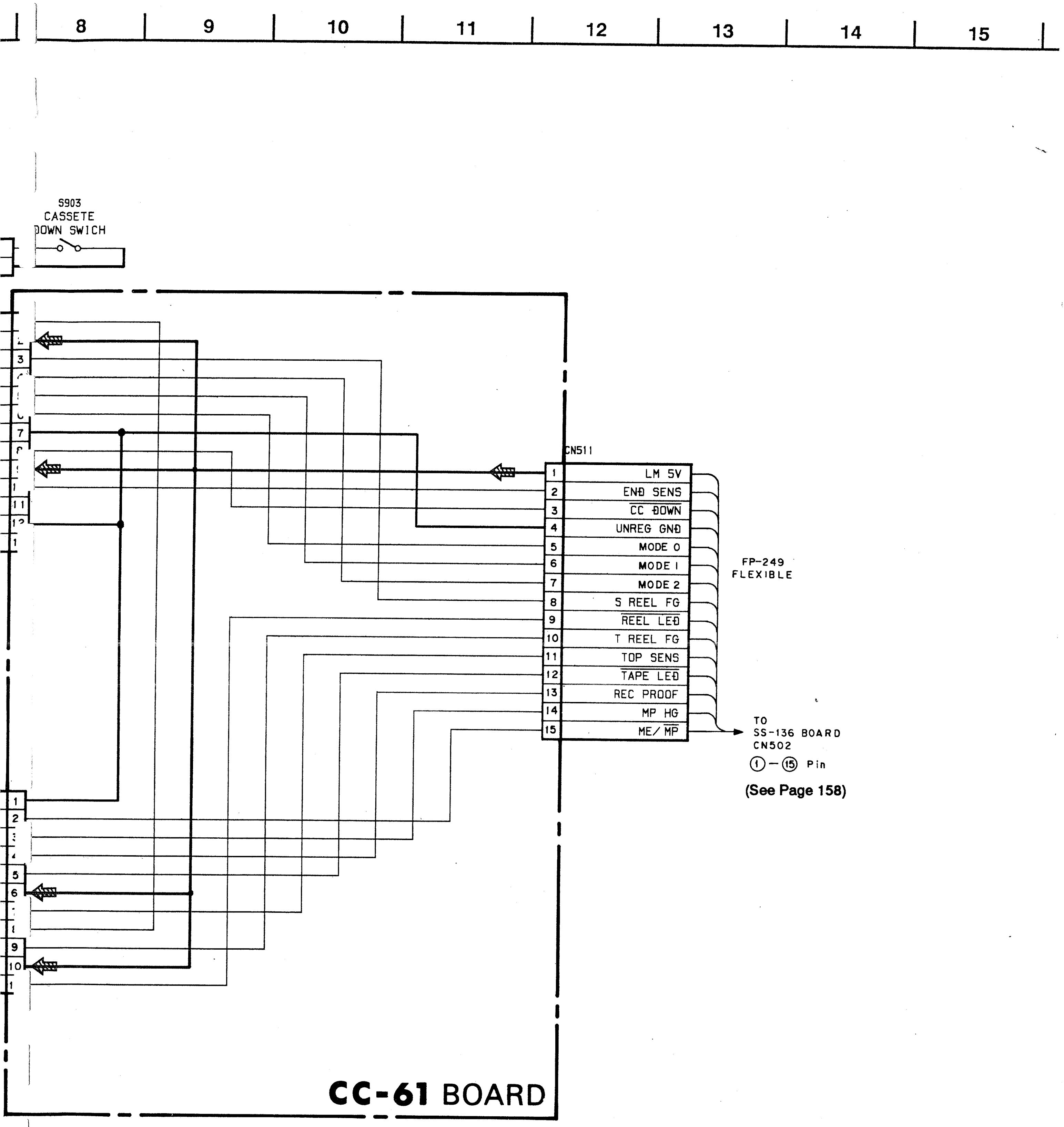
TAPE SENSOR **TAPE SENSOR**

CC-61 (LINK), FP-89 (SENSOR), FP-90 (SENSOR) SCHEMATIC DIAGRAMS

— Ref. No. CC-61 BOARD: 10000 series, FP-89 BOARD: 11000 series, FP-90 BOARD: 12000 series —


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
S301
MODE SWICH
A
B
C
D301
TLP907
S REEL
S903
CASSETE
DOWN SWICH
CC DOWN
COM
CN512
1 T/S REEL SENS
2 5V
3 S REEL FG
4 MODE SW 2
5 MODE SW 1
6 MODE SW 0
7 COM
8 CC DOWN
9 5V
10 END SENS
11 T3/10
12 COM
13 N.C.
Q301
EE-TP109
TAPE END
SENSOR
FP-89 BOARD
(FLEXIBLE)
CN511
1 LM 5V
2 END SENS
3 CC DOWN
4 UNREG GND
5 MODE 0
6 MODE 1
7 MODE 2
8 S REEL FG
9 REEL LED
10 T REEL FG
11 TOP SENS
12 TAPE LED
13 REC PROOF
14 MP HG
15 ME/MP
FP-249
FLEXIBLE
TO
SS-136 BOARD
CN502
①-⑮ Pin
(See Page 158)
S302
REC PROOF SW,TAPE SELECT
CN513
1 COM
2 ME/MP
3 MP HG
4 REC PROOF
5 TAPE LED
6 5V
7 TOP SENSE
8 T REEL LED (+)
9 T REEL FG
10 5V
11 TREEL LED (-)
D302
GL-452S
TAPELED
Q302
EE-TP109
TAPE TOP SENSOR
D303
TLP907
T REEL
FP-90 BOARD
(FLEXIBLE)
CC-61 BOARD
09

167


8
9
10
11
12
13
14
15
S903
CASSETE
DOWN SWICH
CN511
1 LM 5V
2 END SENS
3 CC DOWN
4 UNREG GND
5 MODE 0
6 MODE 1
7 MODE 2
8 S REEL FG
9 REEL LED
10 T REEL FG
11 TOP SENS
12 TAPE LED
13 REC PROOF
14 MP HG
15 ME/MP
FP-249
FLEXIBLE
TO
SS-136 BOARD
CN502
①–⑮ Pin
CC-61 BOARD

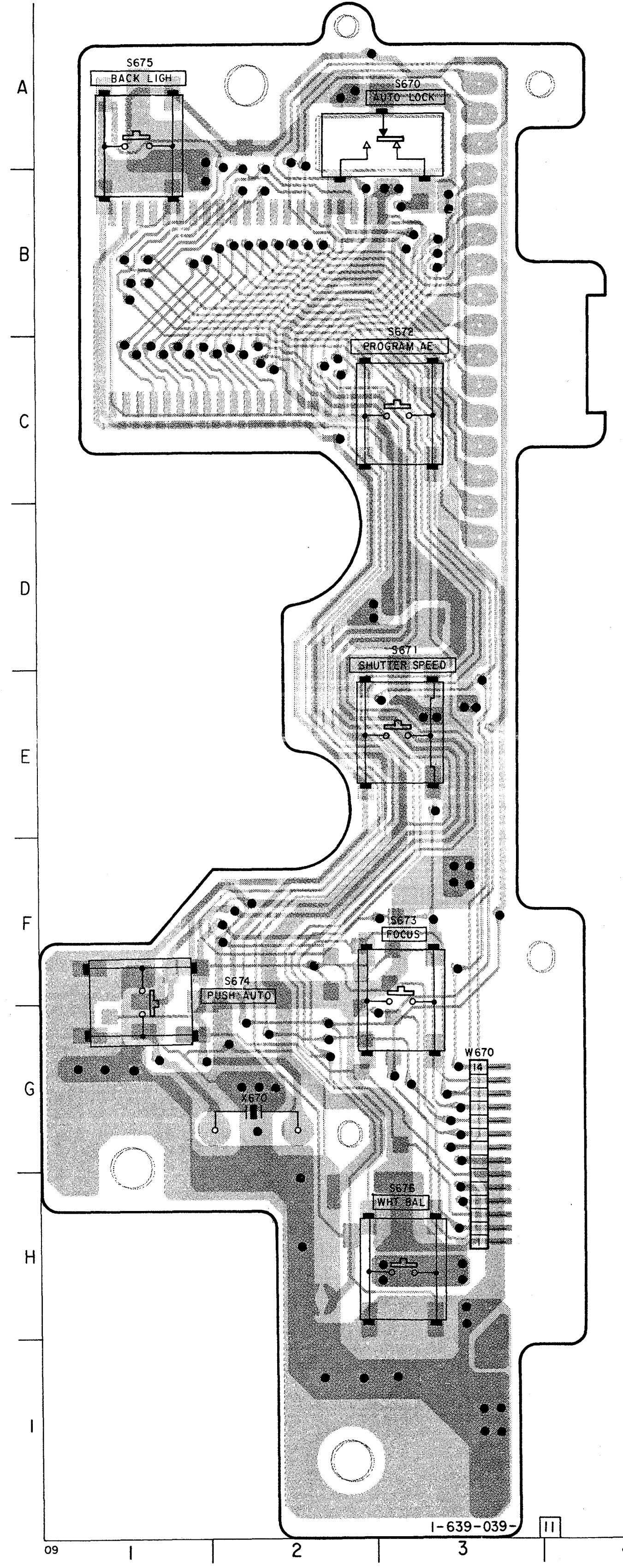
(See Page 158)

167

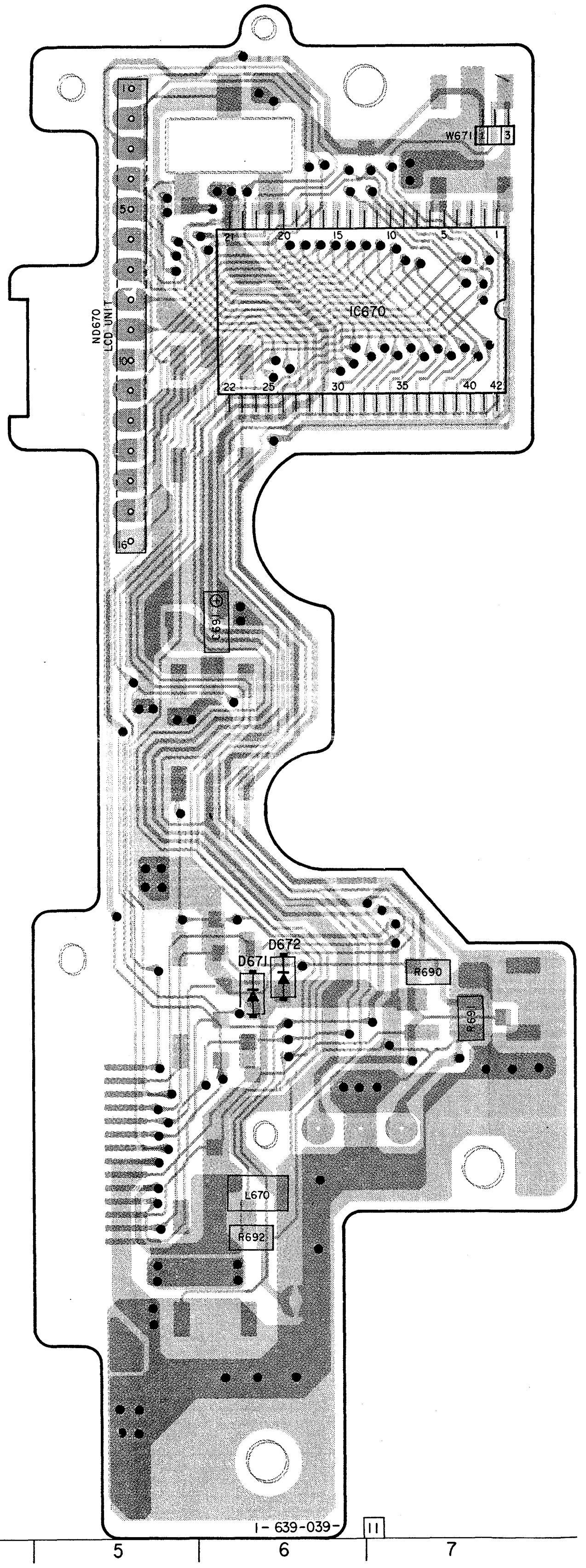
VK-16 (VTR FUNCTION SWITCH), DK-12 (SIRCS CONTROL, TITLER SWITCH), CK-46 (CAMERA FUNCTION SWITCH), LI-36 (LITHIUM SWITCH), ZK-12 (FADER SWITCH) PRINTED WIRING BOARDS

— Ref. No. VK-16 BOARD: 4000 series, DK-12 BOARD: 5000 series, CK-46 BOARD: 5000 series, LI-36 BOARD: 6000 series, ZK-12 BOARD: 5000 series —

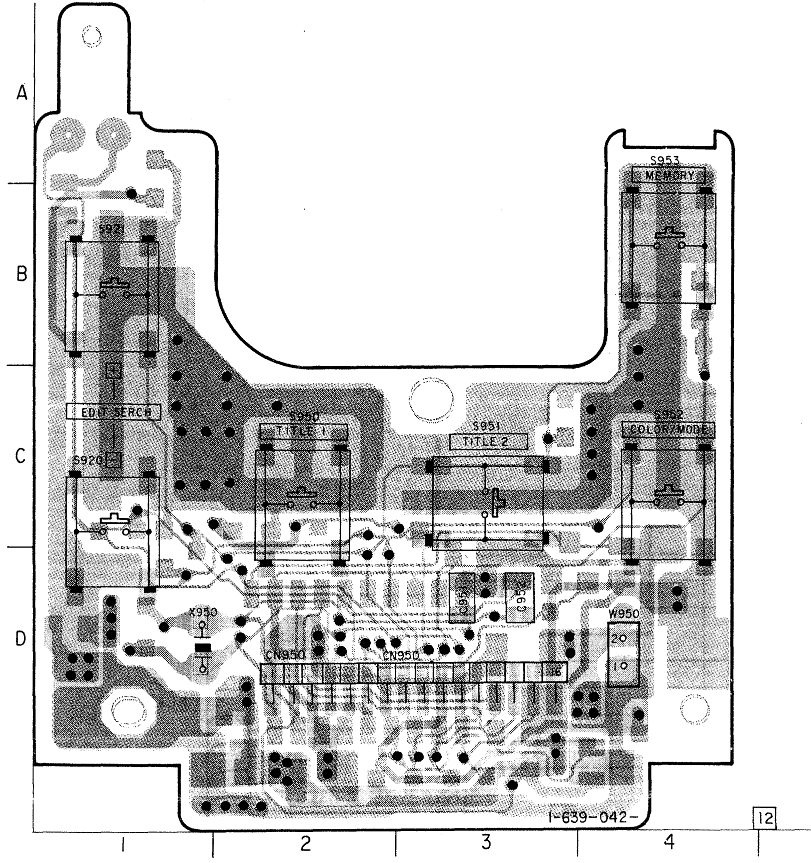
CK-46 BOARD (COMPONENT SIDE)


A
B
C
D
E
F
G
H
I
S675
BACK LIGH
S670
AUTO LOCK
S672
PROGRAM AE
S671
SHUTTER SPEED
S673
FOCUS
S674
PUSH AUTO
W670
X670
S676
WHT BAL
1-639-039-
11
09
1
2
3

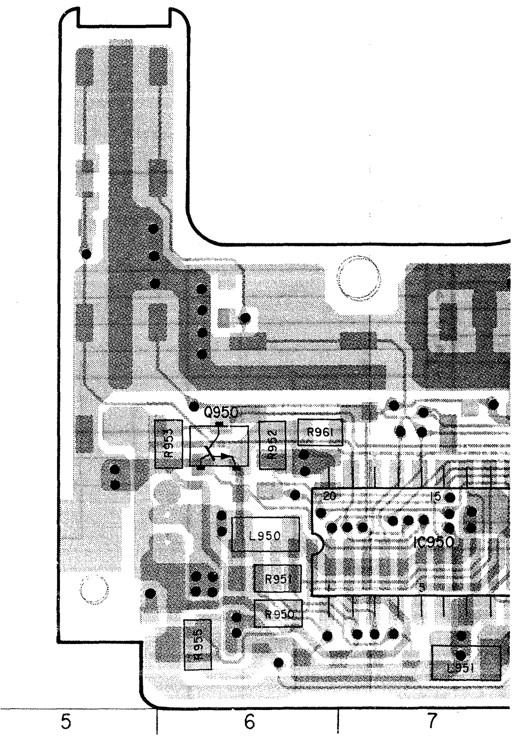
CK-46 BOARD (CONDUCTOR SIDE)


CN670
LCD UNIT
W671
IC670
21
20
15
10
5
1
22
25
30
35
40
42
D671
D672
R690
L670
R692
1-639-039-
11
4
5
6
7

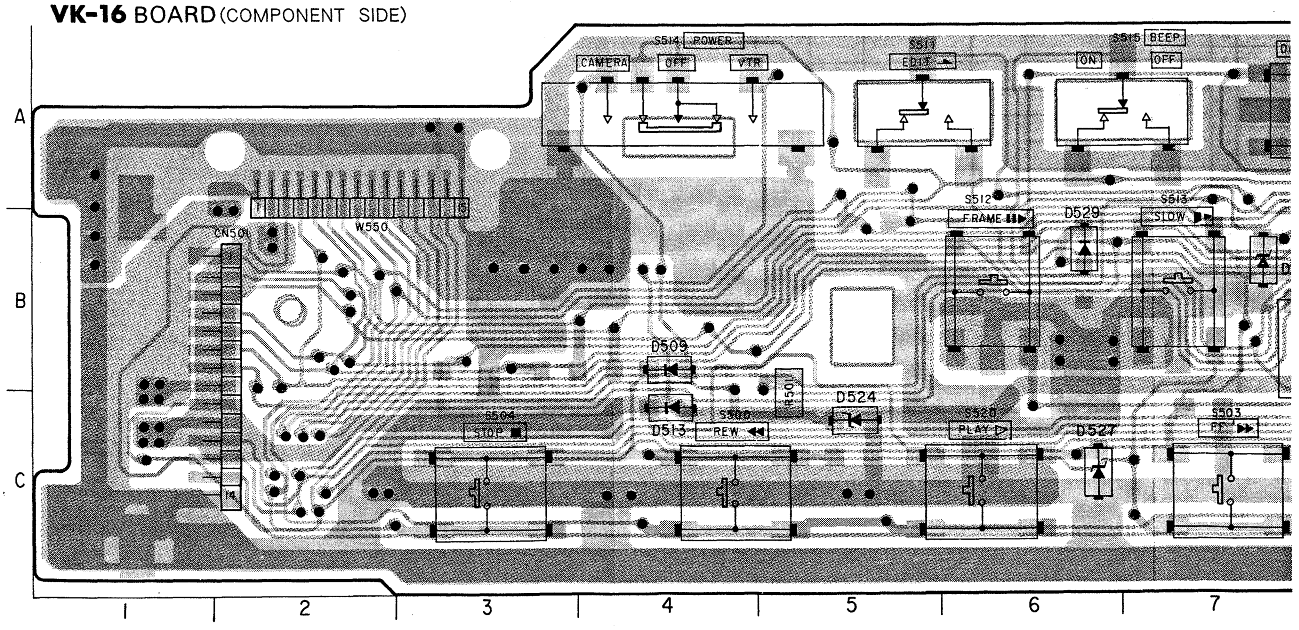
DK-12 BOARD (COMPONENT SIDE)


A
B
C
D
S953
MEMORY
S921
EDIT SERCH
S920
S950
TITLE 1
S951
TITLE 2
S952
COLOR MODE
X950
CN950
W950
1-639-042-
12
1
2
3
4

DK-12 BOARD (CONDUCTOR SIDE)

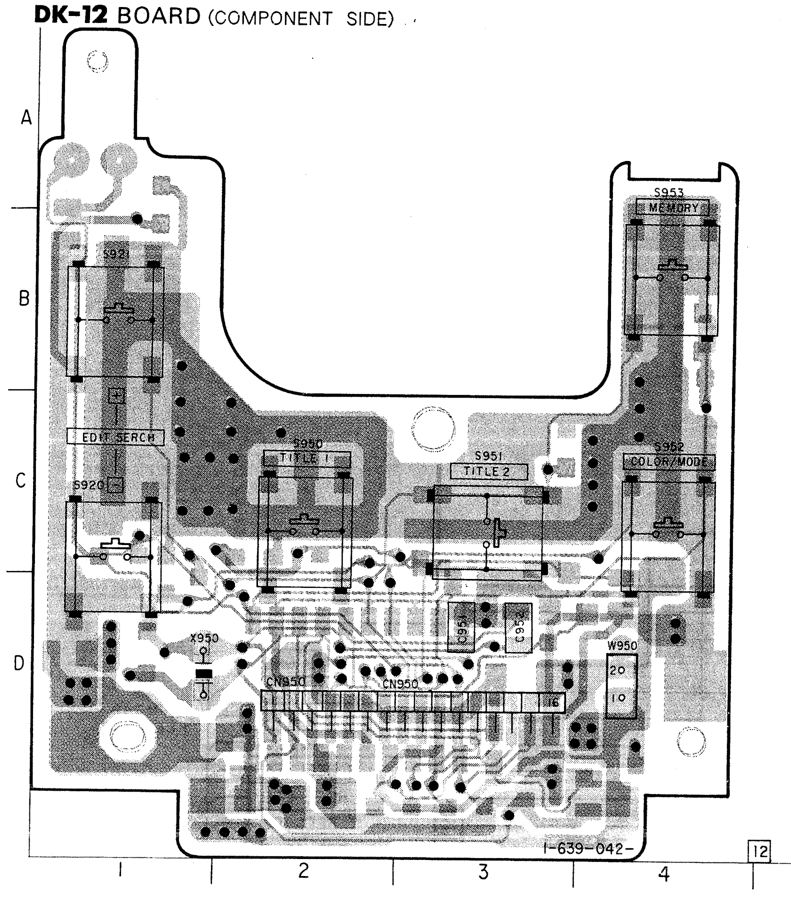

Q950
R953
R962
R961
L950
R951
R950
R955
IC950
L951
5
6
7

VK-16 BOARD (COMPONENT SIDE)

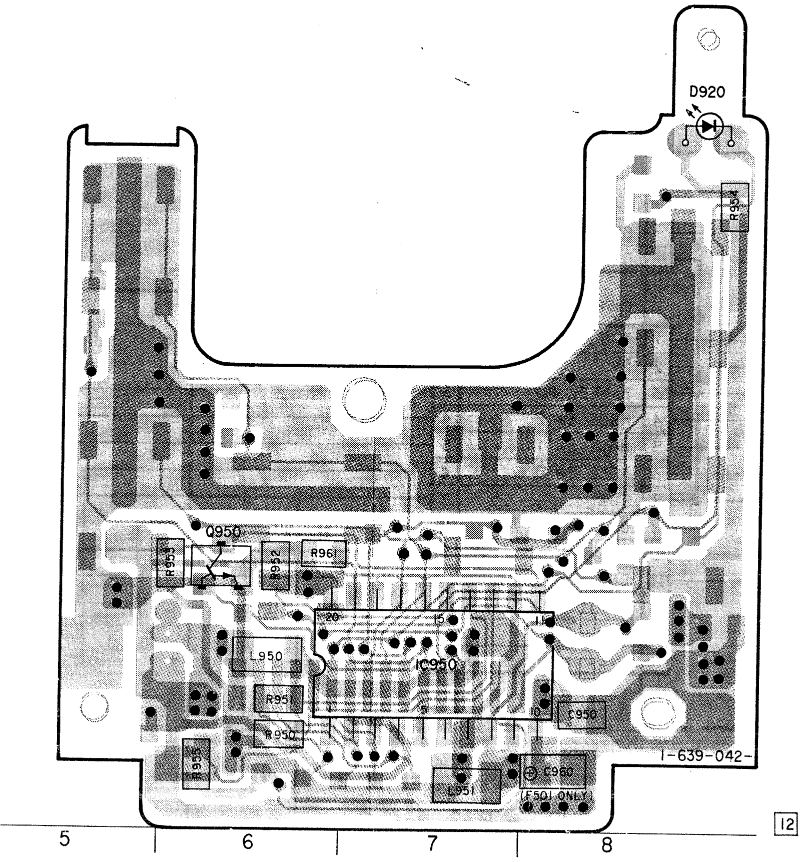

A
B
C
S514
POWER
CAMERA
OFF
VTR
S511
EDIT
S515
BEEP
ON
OFF
CN501
W550
S512
FRAME
D529
S513
SLOW
D509
D513
S500
REW
R501
D524
S504
STOP
S520
PLAY
D527
S503
FF
1
2
3
4
5
6
7

WITCH), LI-36 (LITHIUM SWITCH), ZK-12 (FADER SWITCH) PRINTED WIRING BOARDS

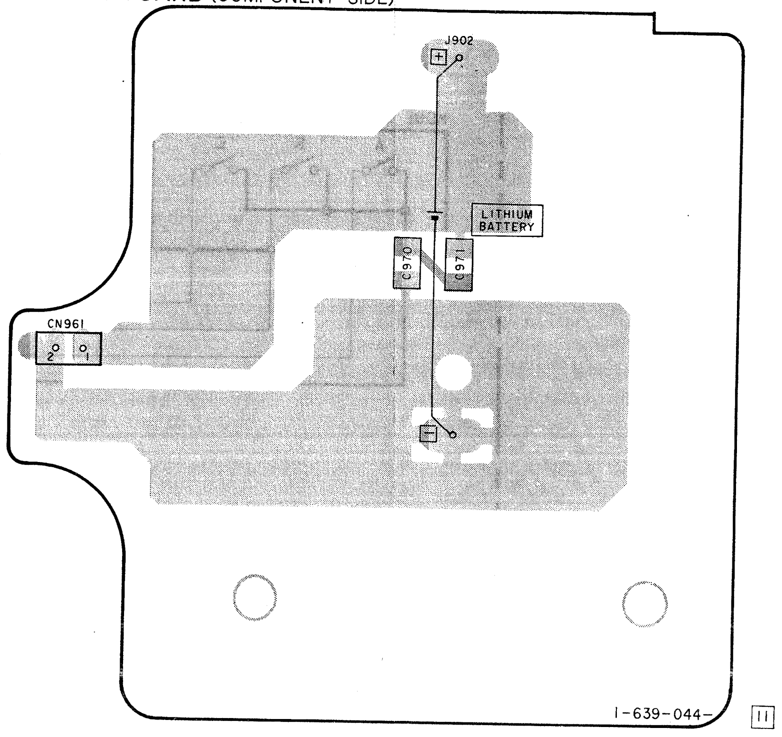
DK-12 BOARD (COMPONENT SIDE)


A
B
C
D
S921
S953
MEMORY
EDIT SERCH
S950
TITLE 1
S951
TITLE 2
S952
COLOR/MODE
S920
X950
C951
C952
W950
20
10
CN950
1-639-042-
12
1
2
3
4

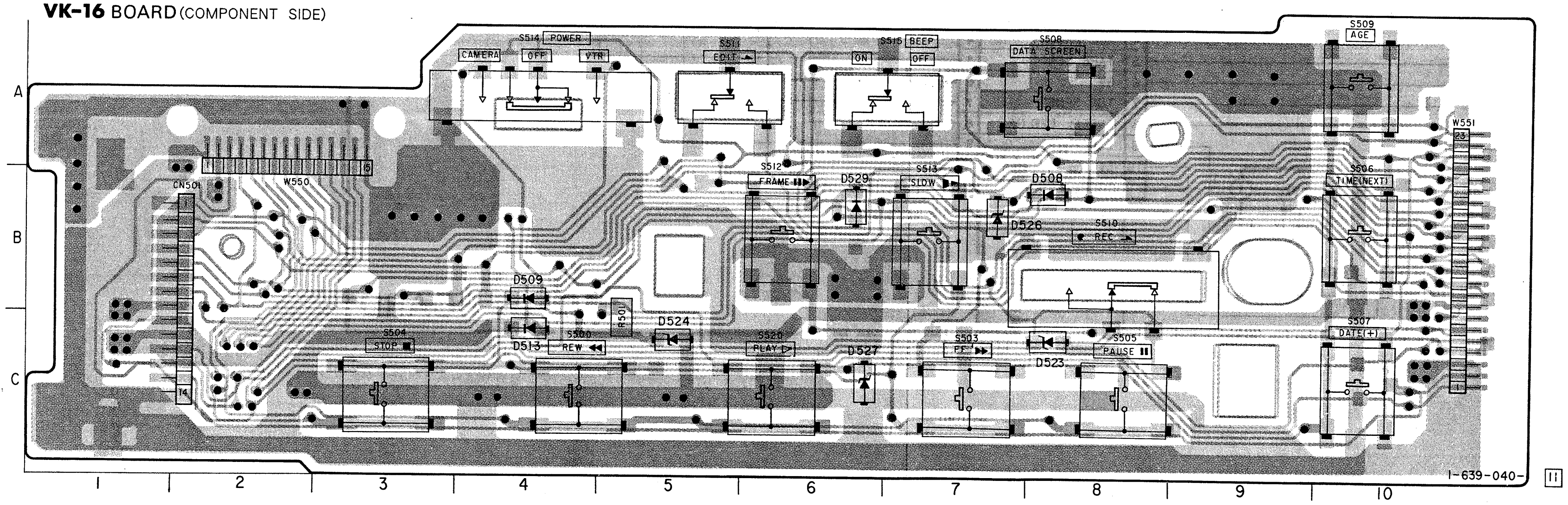
DK-12 BOARD (CONDUCTOR SIDE)


D920
R954
Q950
R953
R962
R961
L950
IC950
20
15
11
10
R951
R950
R952
L951
C950
C960
(F501 ONLY)
1-639-042-
12
5
6
7
8

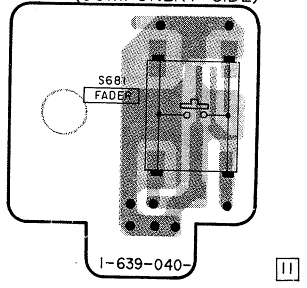
LI-36 BOARD (COMPONENT SIDE)


J902
LITHIUM BATTERY
C970
C971
CN961
1-639-044-
11

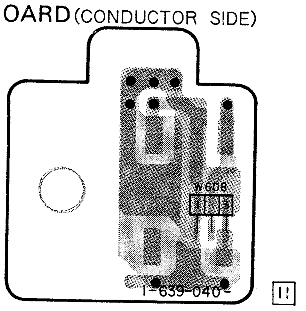
VK-16 BOARD (COMPONENT SIDE)


A
B
C
S514 POWER
CAMERA
OFF
VTR
S511
EDIT
S515 BEEP
ON
OFF
S508
DATA SCREEN
S509
AGE
W551
CN501
W550
S512
FRAME
D529
S513
SLOW
D508
D526
S510
REC
S506
TIME(NEXT)
D509
D513
S500
REW
R501
D524
S502
PLAY
D527
S503
FF
D523
S505
PAUSE
S507
DATE(+)
S504
STOP
14
1-639-040-
11
1
2
3
4
5
6
7
8
9
10

ZK-12 BOARD (COMPONENT SIDE)

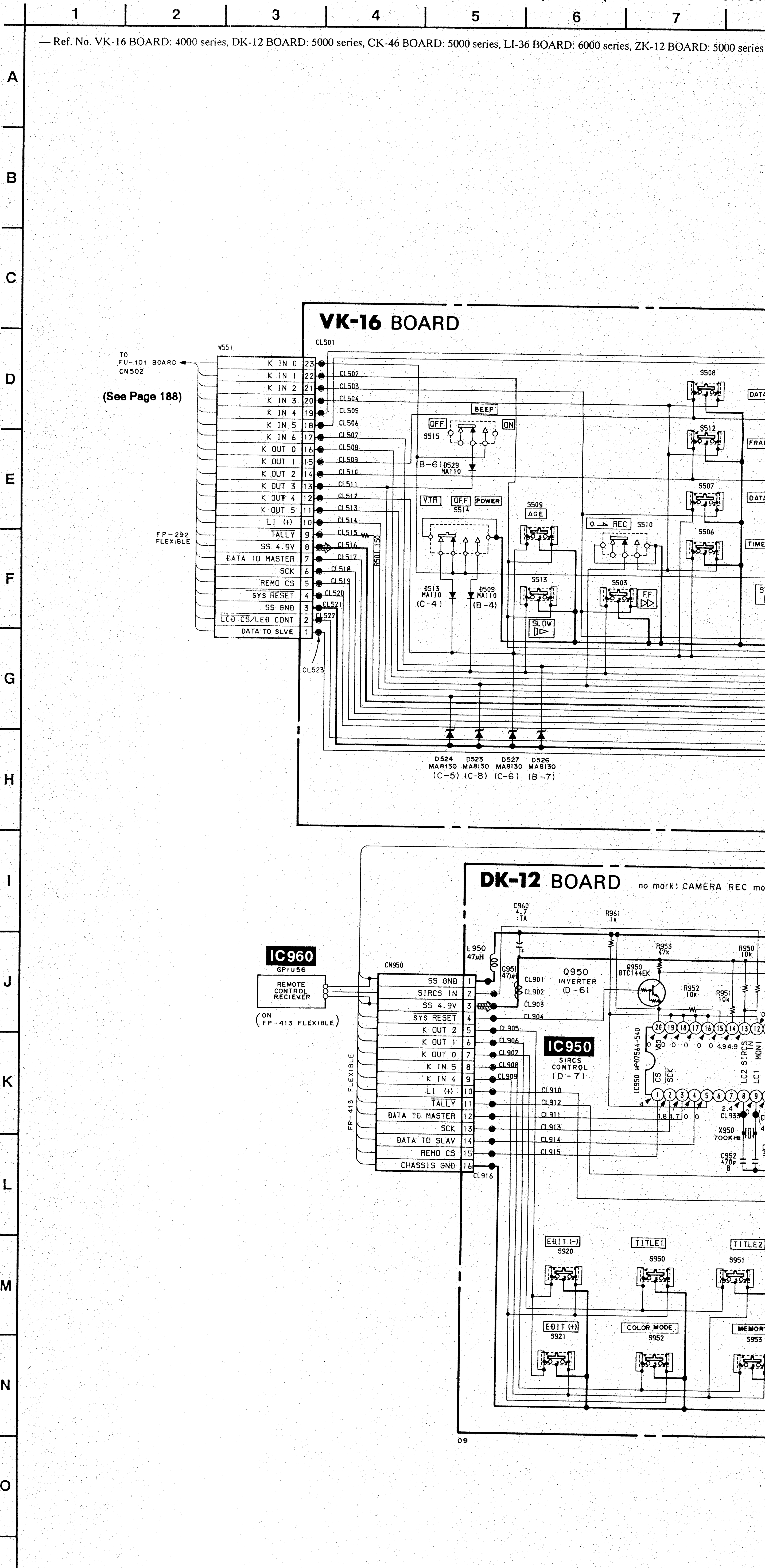

S681
FADER
1-639-040-
11

ZK-12 BOARD (CONDUCTOR SIDE)


W608
1-639-040-
11

VK-16 (VTR FUNCTION SWITCH), DK-12 (SIRCS CONTROL, TITLER SWITCH), CK-46 (CAMERAFUNCTION SW

— Ref. No. VK-16 BOARD: 4000 series, DK-12 BOARD: 5000 series, CK-46 BOARD: 5000 series, LI-36 BOARD: 6000 series, ZK-12 BOARD: 5000 series



1
2
3
4
5
6
7
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
VK-16 BOARD
TO FU-101 BOARD CN502
(See Page 188)
FP-292 FLEXIBLE
K IN 0
K IN 1
K IN 2
K IN 3
K IN 4
K IN 5
K IN 6
K OUT 0
K OUT 1
K OUT 2
K OUT 3
K OUT 4
K OUT 5
LI (+)
TALLY
SS 4.9V
DATA TO MASTER
SCK
REMO CS
SYS RESET
SS GND
LCD CS/LED CONT
DATA TO SLVE
BEEP
OFF
ON
S515
VTR
OFF
POWER
S514
S509
AGE
0 → REC
S510
S513
SLOW
S503
FF
S508
S512
S507
S506
D524 MA8130 (C-5)
D523 MA8130 (C-8)
D527 MA8130 (C-6)
D526 MA8130 (B-7)
DK-12 BOARD
no mark: CAMERA REC mo
IC960
GP1U56
REMOTE CONTROL RECIEVER
(ON FP-413 FLEXIBLE)
FP-413 FLEXIBLE
CN950
SS GND
SIRCS IN
SS 4.9V
SYS RESET
K OUT 2
K OUT 1
K OUT 0
K IN 5
K IN 4
LI (+)
TALLY
DATA TO MASTER
SCK
DATA TO SLAV
REMO CS
CHASSIS GND
Q950
INVERTER
(D-6)
IC950
SIRCS CONTROL
(D-7)
X950
700KHz
EDIT (-)
S920
TITLE1
S950
TITLE2
S951
EDIT (+)
S921
COLOR MODE
S952
MEMORY
S953

*** A-7071-400-A CK-46/ZK-12 MOUNT**
****

(DIODE)

D671	8-719-404-46	DIODE	MA110
D672	8-719-404-46	DIODE	MA110

(IC)

IC670	8-759-634-72	IC	M34206M2-109FP

*** A-7062-720-A DK-12 BOARD, COMPLETE**
****

(DIODE)

D920	8-719-812-41	LED	TLR124, RED (TALLY)

(IC)

IC950	8-759-145-63	IC	uPD7564G-540-E1

(TRANSISTOR)

Q950	8-729-901-01	TRANSISTOR	DTC144EK

*** A-7071-399-A VK-16 BOARD, COMPLETE**
****

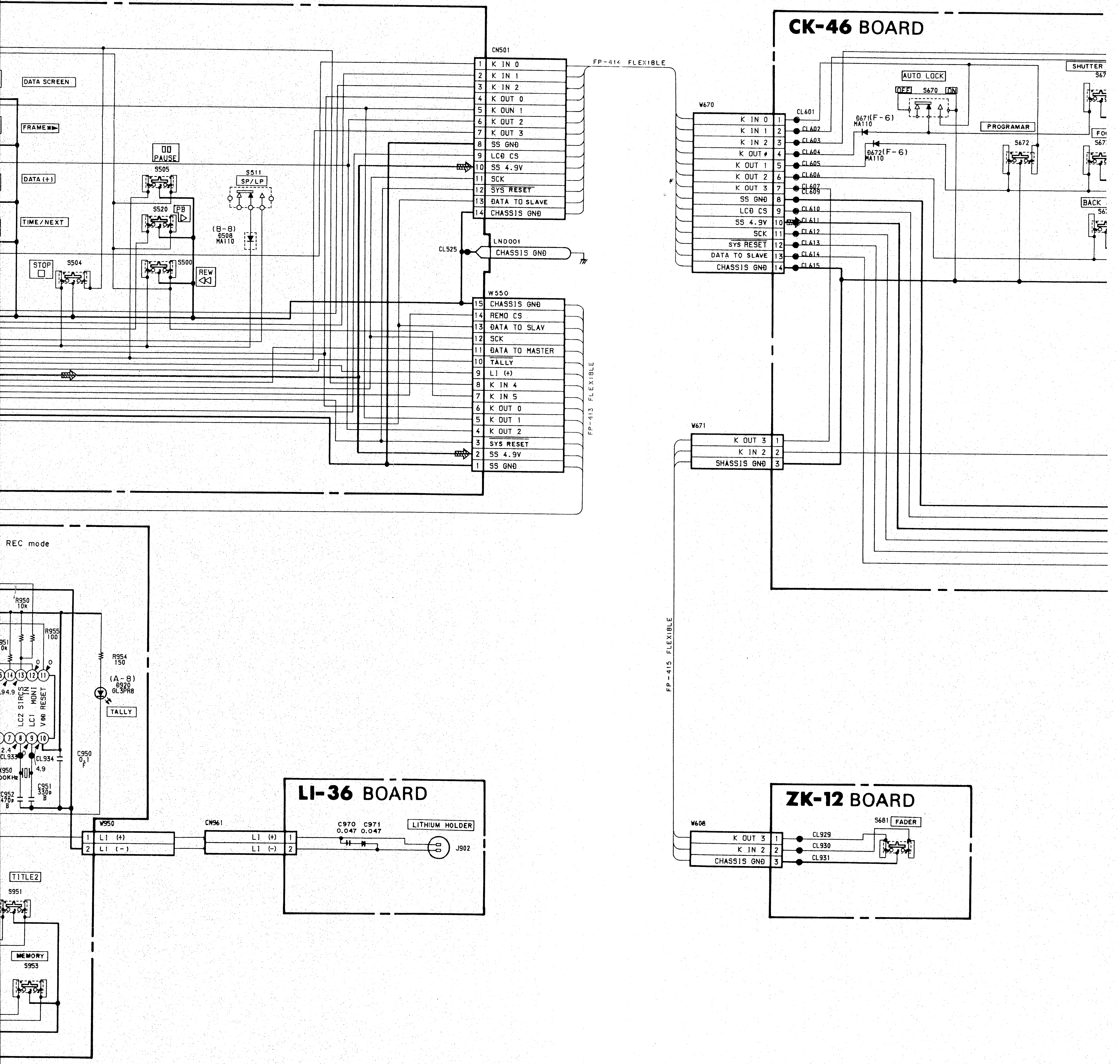
(DIODE)

D508	8-719-404-46	DIODE	MA110
D509	8-719-404-46	DIODE	MA110
D513	8-719-404-46	DIODE	MA110
D529	8-719-404-46	DIODE	MA110

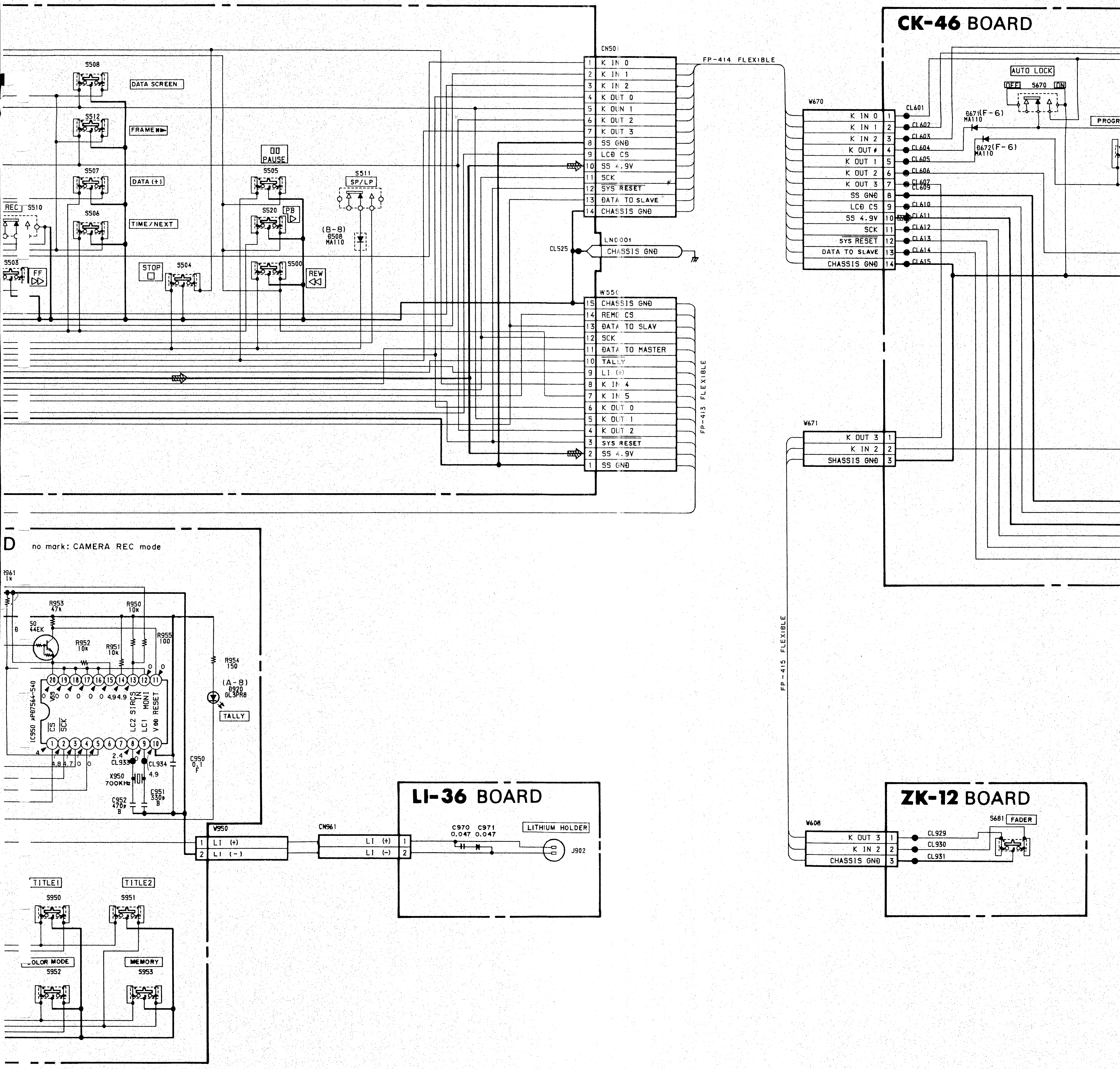
(IC)

IC960	8-749-921-76	IC	GP1U56 (ON FP-413 FLEXIBLE)

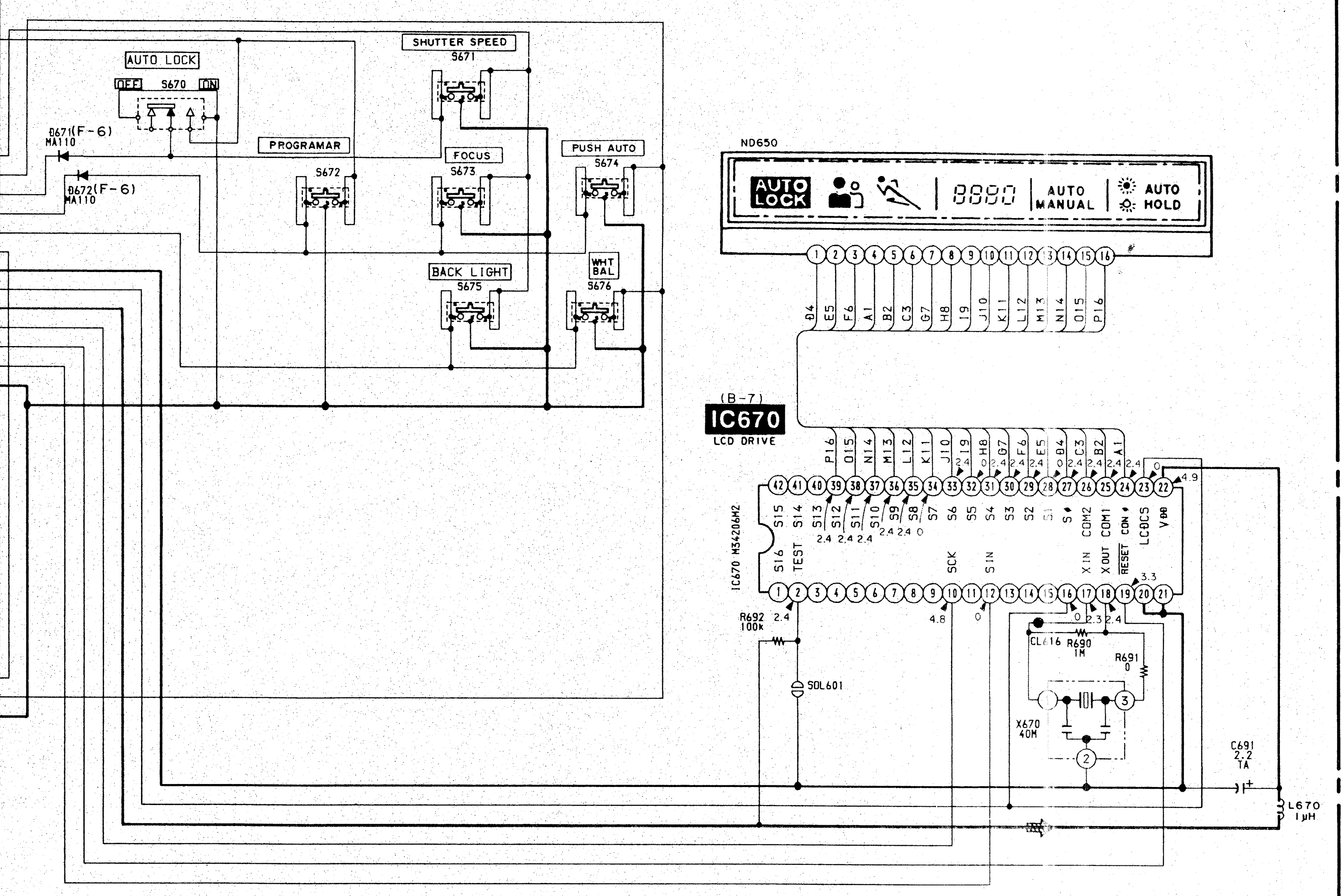
00 series —


CK-46 BOARD
LI-36 BOARD
ZK-12 BOARD
DATA SCREEN
FRAME
DATA (+)
TIME/NEXT
STOP
S504
PAUSE
S505
S520
PB
S500
REW
S511
SP/LP
(B-8)
D508
MA110
CN501
1 K IN 0
2 K IN 1
3 K IN 2
4 K OUT 0
5 K OUN 1
6 K OUT 2
7 K OUT 3
8 SS GND
9 LCD CS
10 SS 4.9V
11 SCK
12 SYS RESET
13 DATA TO SLAVE
14 CHASSIS GND
FP-414 FLEXIBLE
CL525
LND001
CHASSIS GND
W550
15 CHASSIS GND
14 REMO CS
13 DATA TO SLAV
12 SCK
11 DATA TO MASTER
10 TALLY
9 LI (+)
8 K IN 4
7 K IN 5
6 K OUT 0
5 K OUT 1
4 K OUT 2
3 SYS RESET
2 SS 4.9V
1 SS GND
FP-413 FLEXIBLE
W670
K IN 0 1
K IN 1 2
K IN 2 3
K OUT 0 4
K OUT 1 5
K OUT 2 6
K OUT 3 7
SS GND 8
LCD CS 9
SS 4.9V 10
SCK 11
SYS RESET 12
DATA TO SLAVE 13
CHASSIS GND 14
CL601
CL602
CL603
CL604
CL605
CL606
CL607
CL609
CL610
CL611
CL612
CL613
CL614
CL615
AUTO LOCK
OFF
S670
ON
D671(F-6)
MA110
D672(F-6)
MA110
PROGRAMAR
S672
SHUTTER
S67
FO
S67
BACK
S6
W671
K OUT 3 1
K IN 2 2
SHASSIS GND 3
FP-415 FLEXIBLE
REC mode
R950
10k
R955
100
R951
0k
R954
150
(A-8)
D920
GL3PR8
TALLY
LC2
LC1
SIRCS
MONI
V DD
RESET
C950
0.1
F
CL933
CL934
4.9
X950
OOKHz
C952
470p
B
C951
330p
B
W950
1 LI (+)
2 LI (-)
CN961
LI (+) 1
LI (-) 2
C970
0.047
C971
0.047
LITHIUM HOLDER
J902
W608
K OUT 3 1
K IN 2 2
CHASSIS GND 3
CL929
CL930
CL931
S681
FADER
TITLE2
S951
MEMORY
S953

ries, ZK-12 BOARD: 5000 series —

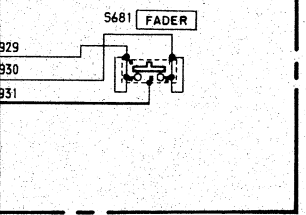

CK-46 BOARD
LI-36 BOARD
ZK-12 BOARD
D
no mark: CAMERA REC mode
CN501
K IN 0
K IN 1
K IN 2
K OUT 0
K OUN 1
K OUT 2
K OUT 3
SS GND
LCD CS
SS 4.9V
SCK
SYS RESET
DATA TO SLAVE
CHASSIS GND
FP-414 FLEXIBLE
W670
K IN 0
K IN 1
K IN 2
K OUT 0
K OUT 1
K OUT 2
K OUT 3
SS GND
LCD CS
SS 4.9V
SCK
SYS RESET
DATA TO SLAVE
CHASSIS GND
CL601
CL602
CL603
CL604
CL605
CL606
CL607
CL609
CL610
CL611
CL612
CL613
CL614
CL615
AUTO LOCK
OFF
S670
ON
D671(F-6)
MA110
D672(F-6)
MA110
PROGR
S508
DATA SCREEN
S512
FRAME
S507
DATA (+)
S506
TIME/NEXT
REC
S510
S503
FF
STOP
S504
PAUSE
S505
S520
PB
S500
REW
S511
SP/LP
(B-8)
D508
MA110
LND001
CHASSIS GND
CL525
W550
CHASSIS GND
REMO CS
DATA TO SLAV
SCK
DATA TO MASTER
TALLY
LI (+)
K IN 4
K IN 5
K OUT 0
K OUT 1
K OUT 2
SYS RESET
SS 4.9V
SS GND
FP-413 FLEXIBLE
W671
K OUT 3
K IN 2
SHASSIS GND
FP-415 FLEXIBLE
R961
1k
R953
47k
R950
10k
R955
100
50
44EK
R952
10k
R951
10k
R954
150
(A-8)
D920
GL3PR8
TALLY
IC950 μPD7564-540
CS
SCK
LC2
LC1
SIRCS IN
MONI
V DD
RESET
4.94.9
2.4
CL933
CL934
4.9
X950
700KHz
C950
0.1
F
C952
470p
B
C951
330p
B
W950
LI (+)
LI (-)
CN961
LI (+)
LI (-)
C970 C971
0.047 0.047
LITHIUM HOLDER
J902
W608
K OUT 3
K IN 2
CHASSIS GND
CL929
CL930
CL931
S681
FADER
TITLE1
S950
TITLE2
S951
COLOR MODE
S952
MEMORY
S953

46 BOARD


AUTO LOCK
OFF S670 ON
D671(F-6)
MA110
D672(F-6)
MA110
SHUTTER SPEED
S671
PROGRAMAR
S672
FOCUS
S673
PUSH AUTO
S674
BACK LIGHT
S675
WHT BAL
S676
ND650
AUTO LOCK
8890
AUTO MANUAL
AUTO HOLD
D4 E5 F6 A1 B2 C3 G7 H8 I9 J10 K11 L12 M13 N14 O15 P16
(B-7)
IC670
LCD DRIVE
IC670 M34206M2
S15 S14 S13 S12 S11 S10 S9 S8 S7 S6 S5 S4 S3 S2 S1 S0 COM2 COM1 CON0 LCDCS VDD
S16 TEST SCK SIN XIN XOUT RESET
R692 100k
SOL601
CL616
R690 1M
R691 0
X670 40M
C691 2.2 TA
L670 1μH

no mark : CAMERA REC mode

12 BOARD


S681
FADER
929
930
931

* A-7062-124-A VF-26 BOARD, COMPLETE (TYPE 1)
****

(DIODE)

D903	8-719-400-20	DIODE	MA152WA-TX
D955	8-719-404-19	DIODE	LN1251C

(IC)

IC901	8-759-420-01	IC	AN2512S

(TRANSISTOR)

Q902	8-729-402-31	TRANSISTOR	2SD1819A-Q-TX
Q903	8-729-106-68	TRANSISTOR	2SD1615A
Q904	8-729-216-31	TRANSISTOR	2SA1163G

A-7062-124-A VF-26 BOARD, COMPLETE (TYPE 2)
****

(DIODE)

D903	8-719-400-20	DIODE	MA152WA-TX
D955	8-719-404-19	DIODE	LN1251C

(IC)

IC901	8-759-511-01	IC	BA7147F-T1
IC901	8-759-514-92	IC	XRA7147F-E1

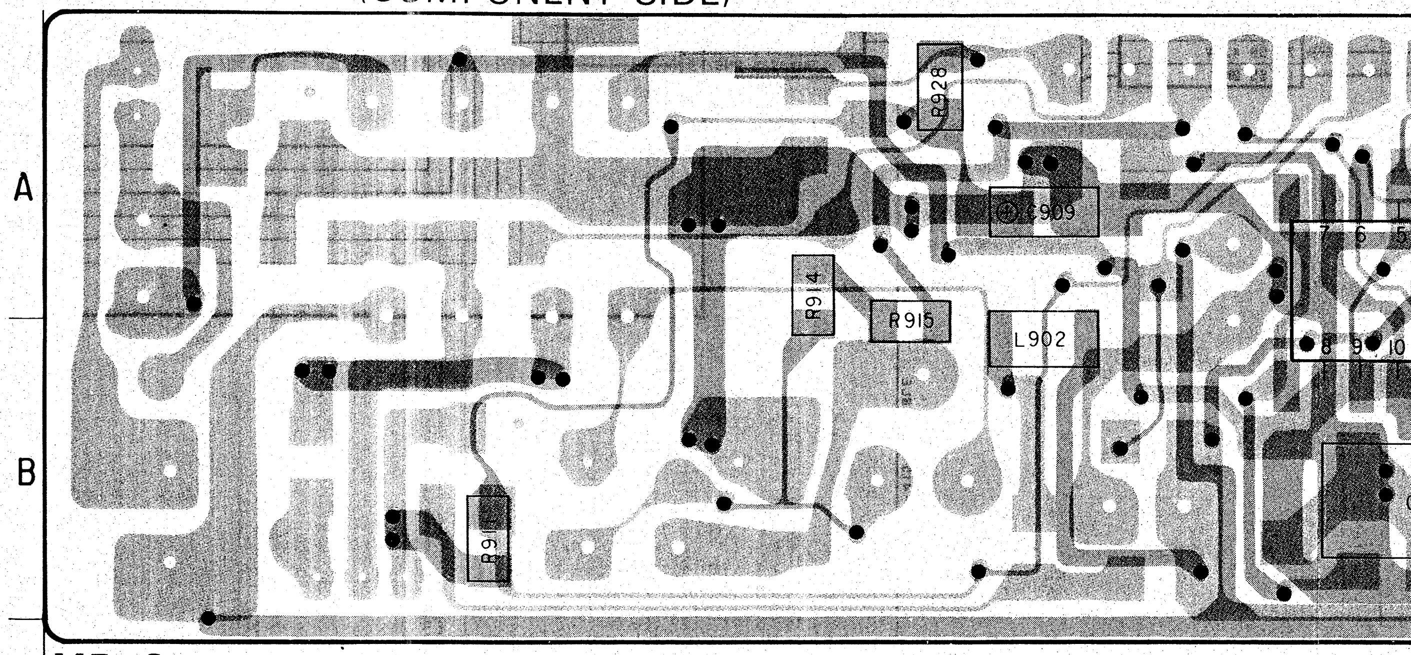
(TRANSISTOR)

Q902	8-729-402-31	TRANSISTOR	2SD1819A-Q-TX
Q903	8-729-106-68	TRANSISTOR	2SD1615A
Q904	8-729-216-31	TRANSISTOR	2SA1163G

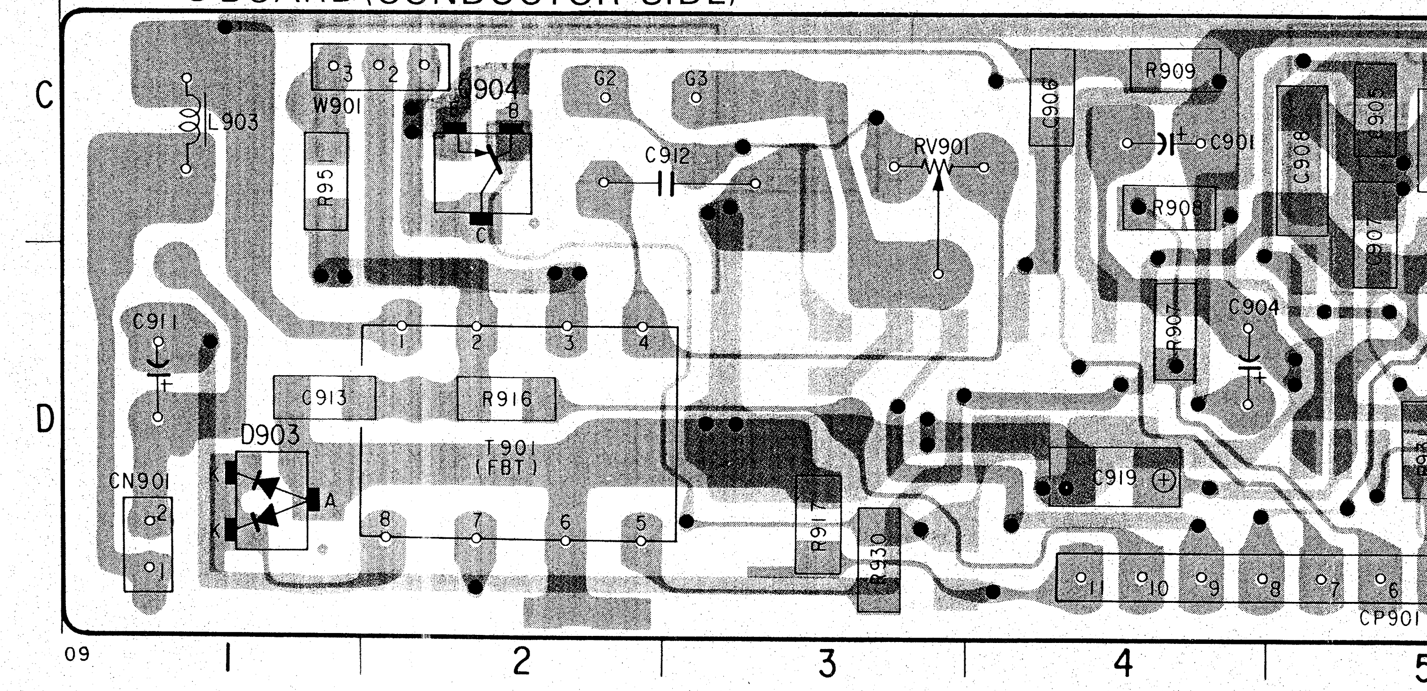
VF-26 (VIEW FINDER), VF-27 (VIEW FINDER) PRINTED WIRING BOARDS

— Ref. No. VF-26 BOARD: TYPE 1 7000 series, TYPE 2 8000 series, VF-27 BOARD: 9000 series —

VF-26 BOARD (COMPONENT SIDE)


A
B
R928
C909
R914
R915
L902
7
6
8
9
10
R916

VF-26 BOARD (CONDUCTOR SIDE)


C
D
L903
W901
3
2
1
R951
Q904
B
C
G2
G3
C912
RV901
C906
R909
C901
C908
R906
C911
1
2
3
4
C904
R907
C913
R916
D903
A
K
T901
(FBT)
CN901
8
7
6
5
R917
R930
C919
11
10
9
8
7
6
CP901
09
1
2
3
4
5

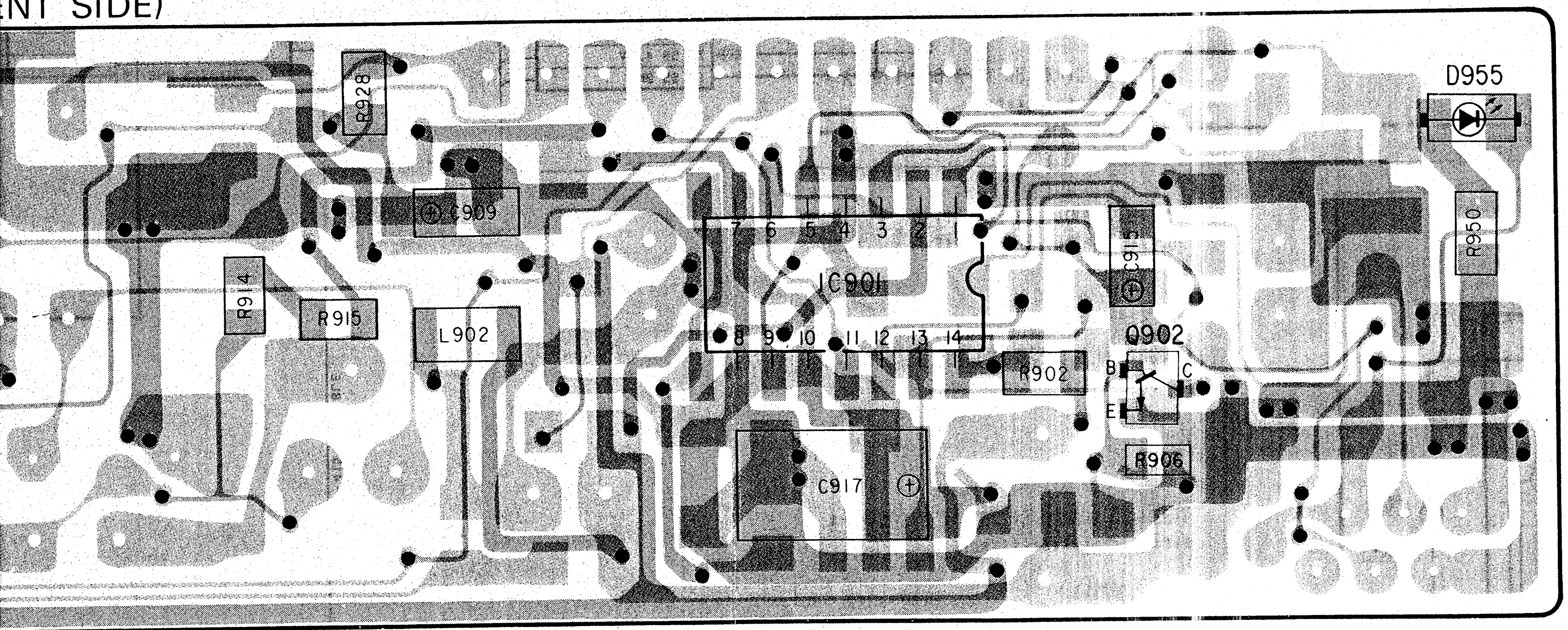
INTED WIRING BOARDS

s, VF-27 BOARD: 9000 series —

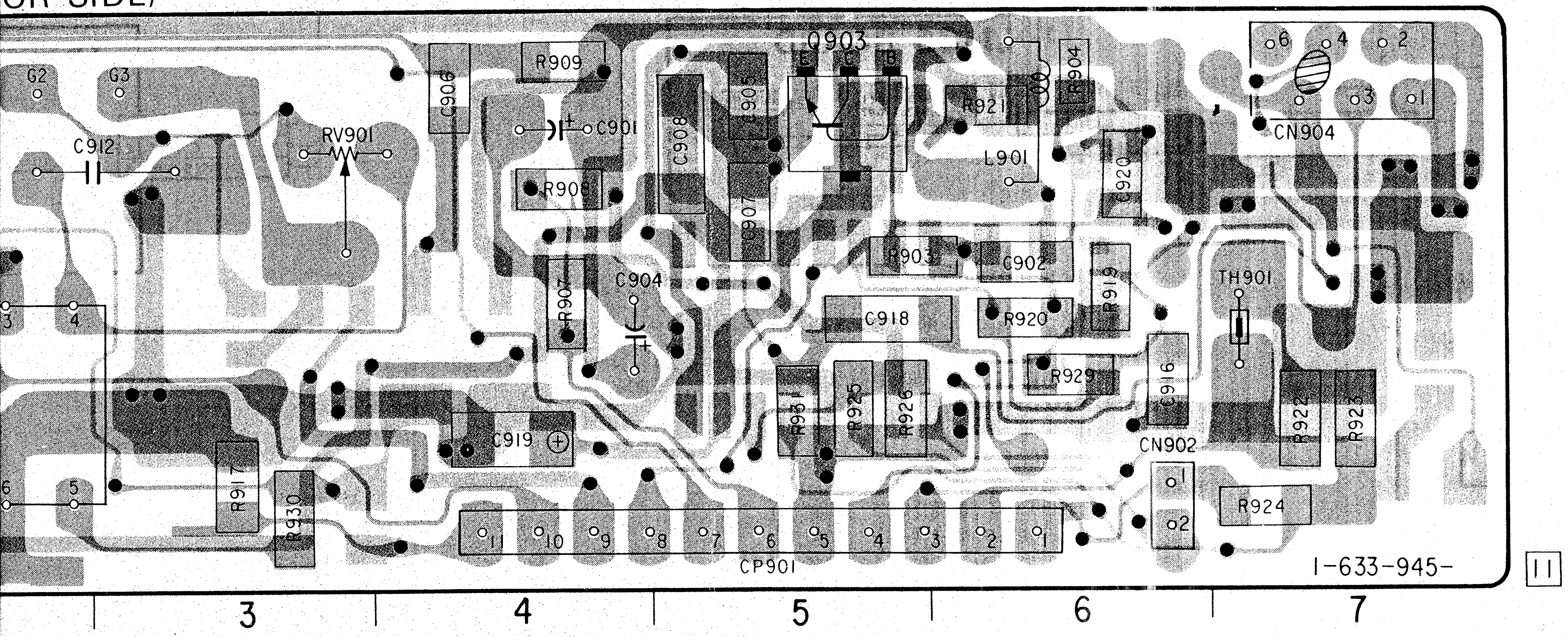
* A-7062-125-A VF-27 I
******

D903	8-719-400-20
D955	8-719-404-19
IC901	8-759-420-01

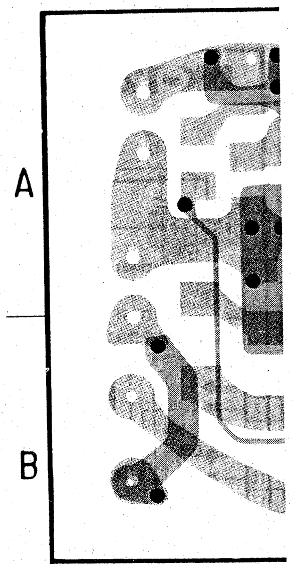
ENT SIDE)


R928
C909
R914
R915
L902
7 6 5 4 3 2 1
IC901
8 9 10 11 12 13 14
C915
Q902
B
C
E
R902
R906
C917
D955
R950

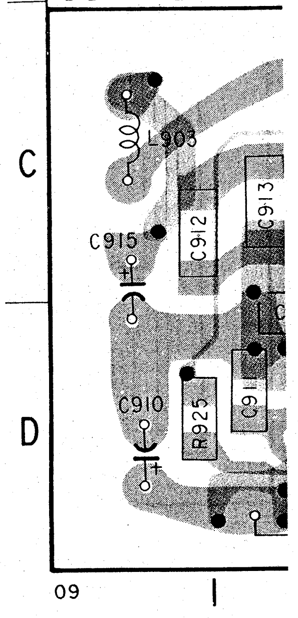
OR SIDE)


G2
G3
C912
RV901
C906
R909
C901
C908
C907
Q903
R921
R904
L901
C920
CN904
6
4
2
3
1
R908
R903
C902
R919
R907
C904
C918
R920
TH901
R929
C916
R931
R925
R926
C919
CN902
R917
R930
R922
R923
R924
11 10 9 8 7 6 5 4 3 2 1
CP901
1-633-945-
11
3
4
5
6
7

VF-27 BOA



VF-27 BOA

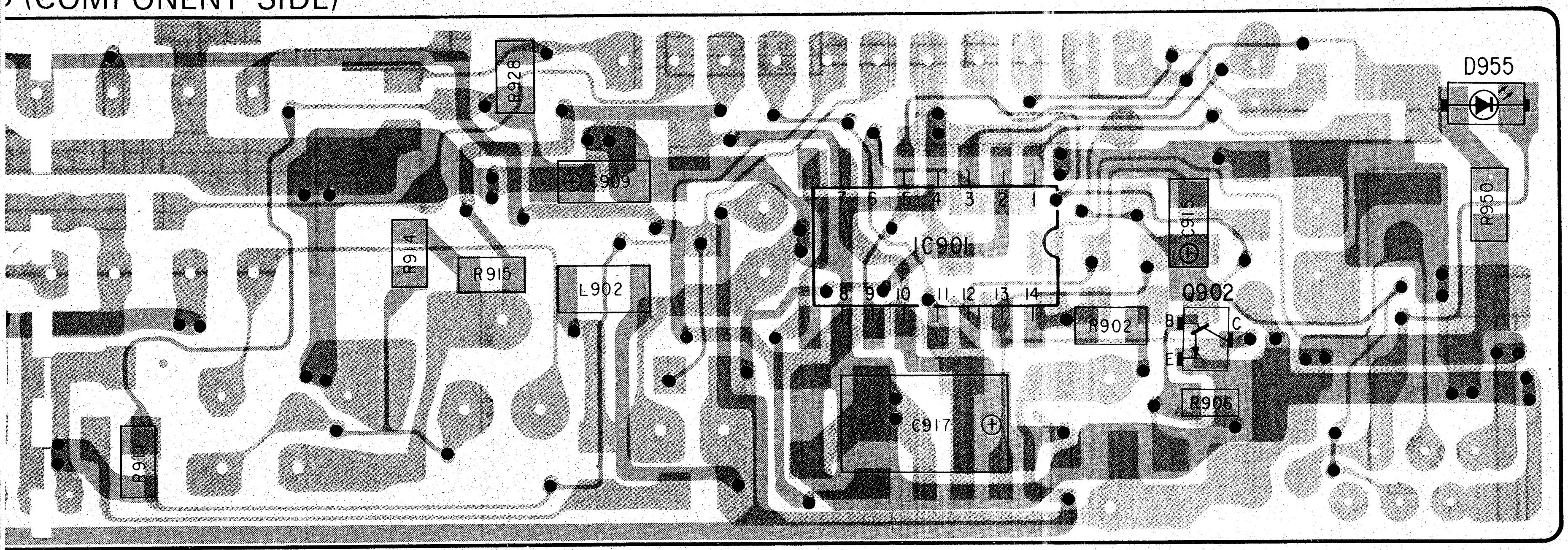

C
D
L903
C915
C912
C913
C910
R925
C911
09
1

VIEW FINDI

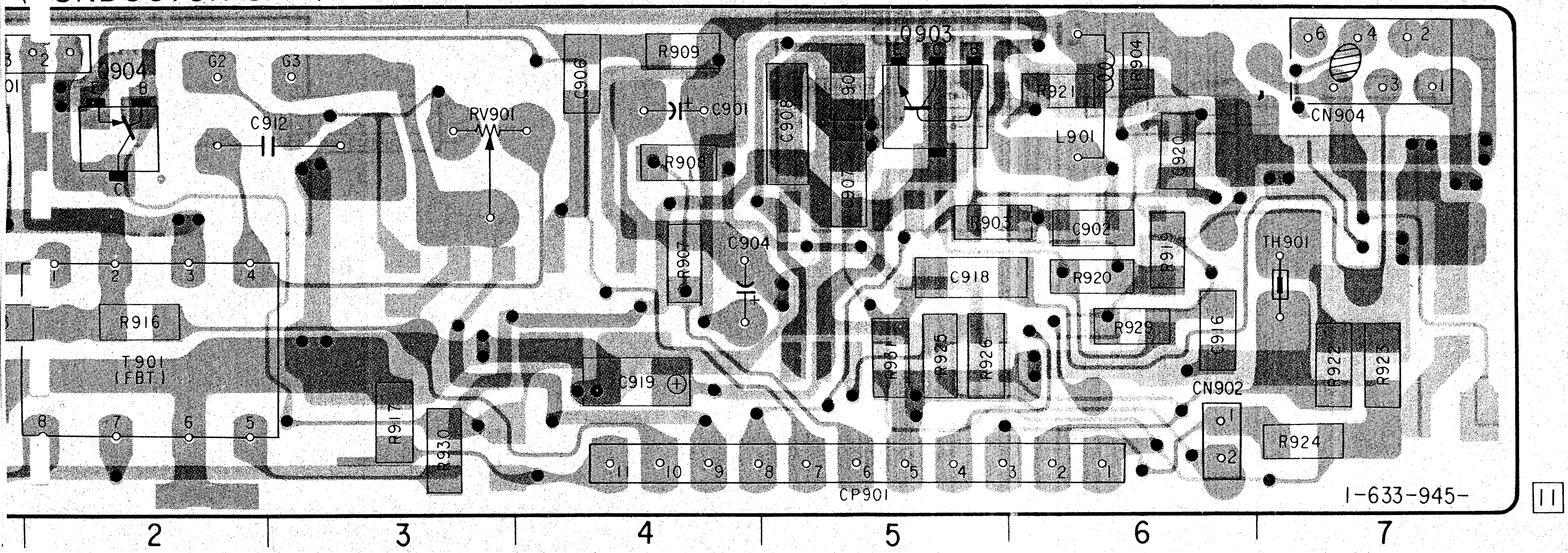
(VI W FINDER) PRINTED WIRING BOARDS

series, TYPE 2 8000 series, VF-27 BOARD: 9000 series —

) (COMPONENT SIDE)


D955
R928
C909
R914
R915
L902
IC901
R902
Q902
B
C
E
R906
C917
R950
C915
R91

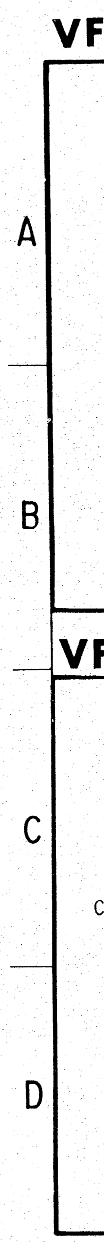
)(CONDUCTOR SIDE)


Q904
B
C
G2
G3
C912
RV901
C906
R909
C901
R908
C908
Q903
R921
D904
L901
R920
CN904
C904
R907
C903
C902
R919
TH901
C918
R920
R929
R916
T901
(FBT)
C919
R925
R926
C916
R927
R92
CN902
R917
R930
R924
CP901
1-633-945-
11
2
3
4
5
6
7

* A-7

D903
D955

IC901


VF
A
B
VF
C
D
09

VI

* A-7062-125-A VF-27 BOARD, COMPLETE
****

〈 DIODE 〉

D903	8-719-400-20	DIODE	MA152WA-TX
D955	8-719-404-19	DIODE	LN1251C-TL

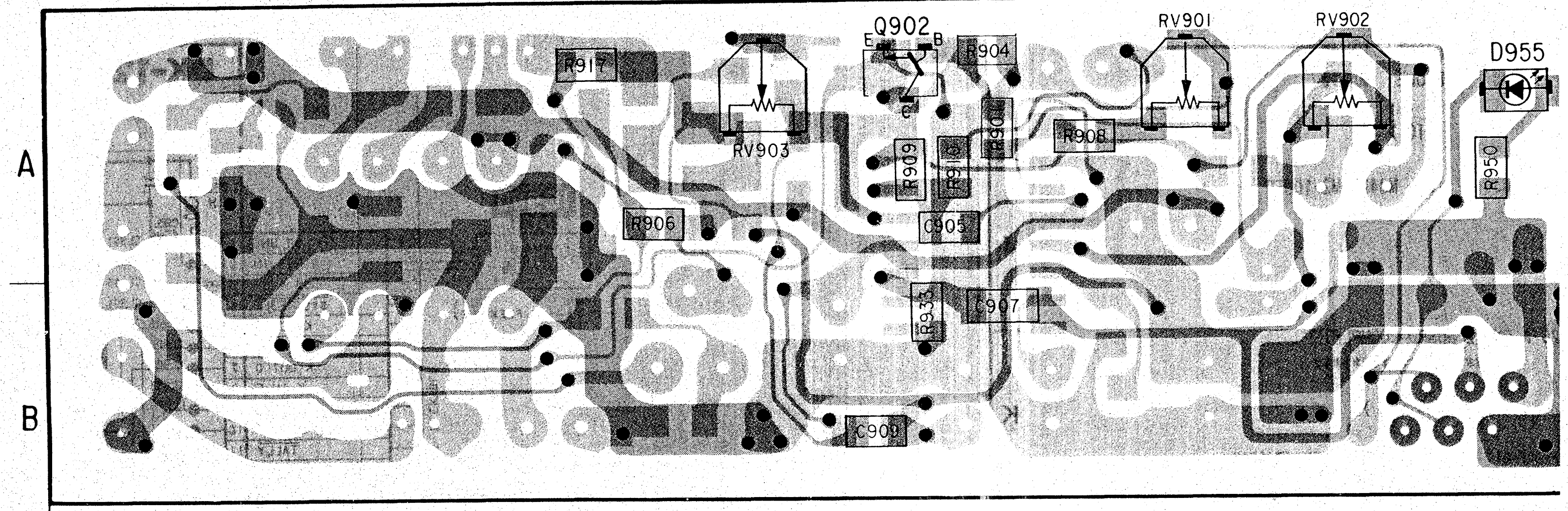
〈 IC 〉

IC901	8-759-420-01	IC	AN2512S-T1

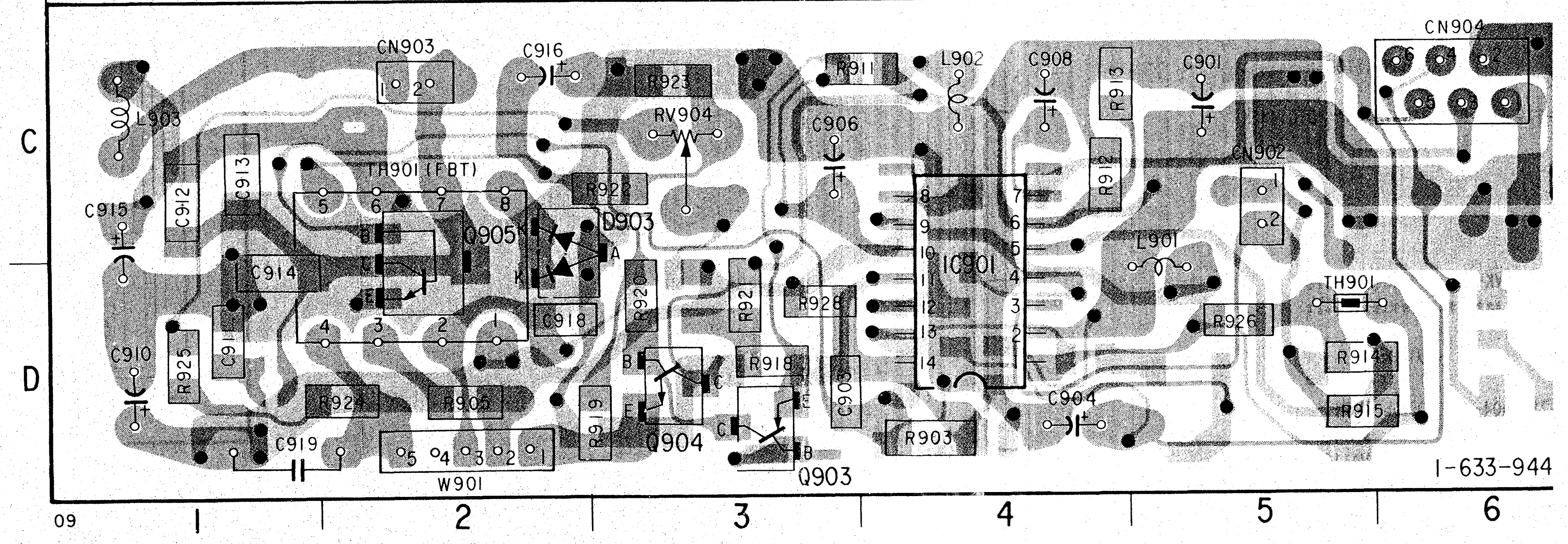
〈 TRANSISTOR 〉

Q902	8-729-100-66	TRANSISTOR	2SC1623
Q903	8-729-216-31	TRANSISTOR	2SA1163G
Q904	8-729-100-66	TRANSISTOR	2SC1623
Q905	8-729-106-68	TRANSISTOR	2SD1615A

VF-27 BOARD (COMPONENT SIDE)


A
B
Q902
E
B
C
RV901
RV902
D955
R917
R904
RV903
R909
R910
R901
R908
R950
R906
C905
R933
C907
C909

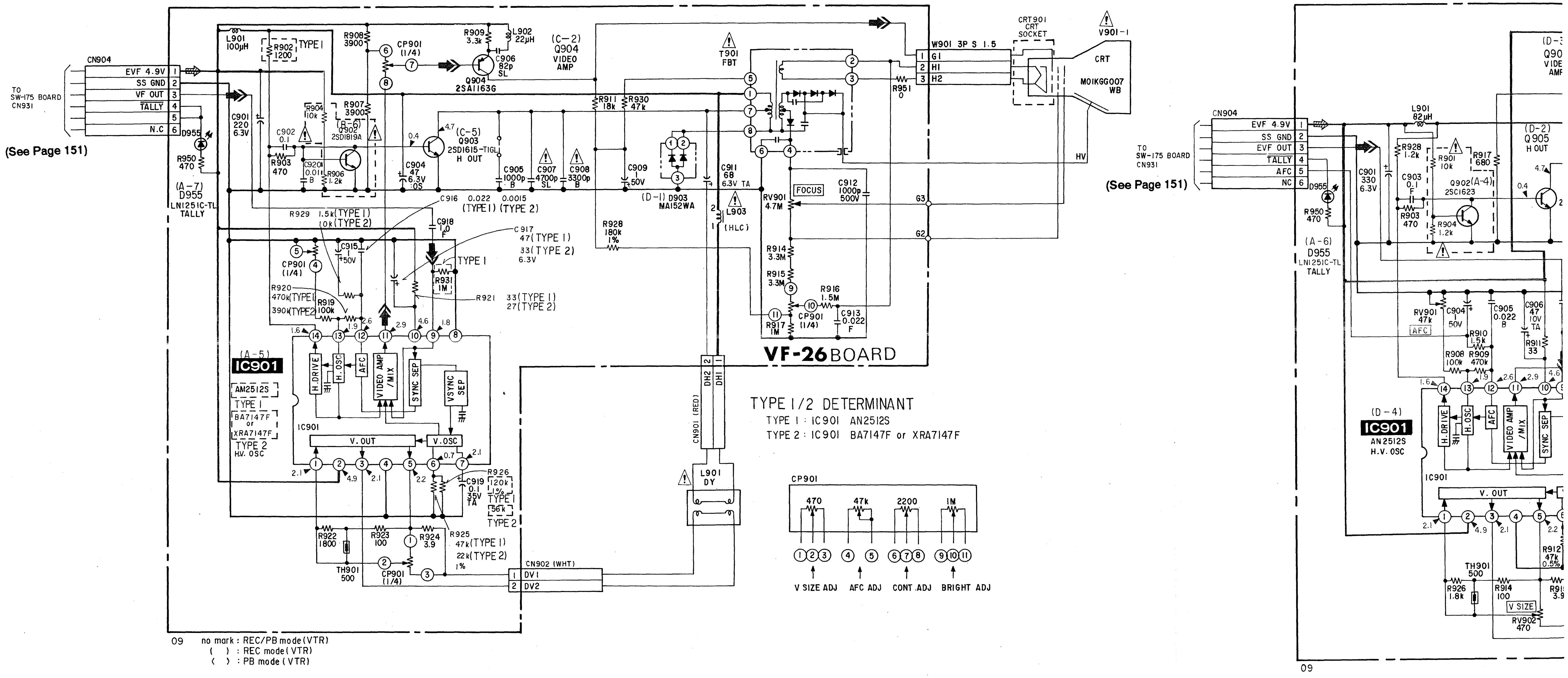
VF-27 BOARD (CONDUCTOR SIDE)


C
D
CN903
C916
R923
R911
L902
C908
C901
CN904
L903
C913
C912
TH901 (FBT)
RV904
C906
R913
R912
CN902
C915
R922
Q905
D903
IC901
L901
C914
C918
R920
R927
R928
TH901
C910
C911
R925
R926
R918
R914
R924
R905
R919
C903
C904
R915
C919
W901
Q904
R903
Q903
1-633-944
09
1
2
3
4
5
6

VF-26 (VIEW FINDER), VF-27 (VIEW FINDER) SCHEMATIC DIAGRAMS

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

— Ref. No. VF-26 BOARD: TYPE 1 7000 series, TYPE 2 8000 series, VF-27 BOAFD: 9000 series —



A
B
C
D
E
F
G
H
I
J
TO SW-175 BOARD CN931
(See Page 151)
CN904
EVF 4.9V 1
SS GND 2
VF OUT 3
TALLY 4
5
N.C 6
D955
R950 470
(A-7) D955 LN1251C-TL TALLY
L901 100μH
R902 1200 TYPE I
R908 3900
CP901 (1/4)
R909 3.3k
L902 22μH
(C-2) Q904 VIDEO AMP
C906 82p SL
Q904 2SA1163G
C901 220 6.3V
C902 0.1
R903 470
R904 10k
R907 3900
(B-6) Q902 2SD1819A
C920 0.01 B
R906 1.2k
(C-5) Q903 2SD1615-TIGL H OUT
C904 47 6.3V OS
C905 1000p B
C907 4700p SL
C908 3300p B
R911 18k
R930 47k
C909 1 50V
(D-1) D903 MA152WA
C911 68 6.3V TA
T901 FBT
L903 (HLC)
R928 180k 1%
C916 0.022 0.0015 (TYPE I) (TYPE 2)
R929 1.5k(TYPE I) 10k(TYPE 2)
C918 1.0 F
C917 47(TYPE I) 33(TYPE 2) 6.3V
C915 1 50V
R931 1M
TYPE I
R921 33(TYPE I) 27(TYPE 2)
R920 470k(TYPE I) 390k(TYPE 2)
R919 100k
(A-5) IC901
AN2512S TYPE I
BA7147F or XRA7147F TYPE 2 H.V. OSC
H.DRIVE
H.OSC
AFC
VIDEO AMP /MIX
SYNC SEP
VSYNC SEP
V.OUT
V.OSC
IC901
R926 120k 1% TYPE I 56k TYPE 2
C919 0.1 35V TA
R922 1800
R923 100
R924 3.9
R925 47k(TYPE I) 22k(TYPE 2) 1%
TH901 500
CP901 (1/4)
CN902 (WHT)
1 DV1
2 DV2
RV901 4.7M
FOCUS
C912 1000p 500V
R914 3.3M
R915 3.3M
R916 1.5M
R917 1M
CP901 (1/4)
C913 0.022 F
VF-26 BOARD
CN901 (RED)
DH2 2
DH1 1
L901 DY
W901 3P S 1.5
1 G1
2 H1
3 H2
R951 0
G3
G2
CRT901 CRT SOCKET
V901-1
CRT
M01KGG007 WB
HV
CP901
470
47k
2200
1M
①②③ V SIZE ADJ
④ ⑤ AFC ADJ
⑥⑦⑧ CONT.ADJ
⑨⑩⑪ BRIGHT ADJ
CN904
EVF 4.9V 1
SS GND 2
EVF OUT 3
TALLY 4
AFC 5
NC 6
TO SW-175 BOARD CN931
(See Page 151)
L901 82μH
R928 1.2k
R901 10k
R917 680
Q902(A-4) 2SC1623
C901 330 6.3V
C903 0.1 F
R903 470
R904 1.2k
(D-2) Q905 H OUT
D955
R950 470
(A-6) D955 LN1251C-TL TALLY
RV901 47k AFC
C904 1 50V
R910 1.5k
C905 0.022 B
C906 47 10V TA
R911 33
R908 100k
R909 470k
(D-4) IC901 AN2512S H.V. OSC
IC901
V.OUT
H.DRIVE
H.OSC
AFC
VIDEO AMP /MIX
SYNC SEP
TH901 500
R926 1.8k
R914 100
R912 47k 0.5%
V SIZE RV902 470
09

TYPE 1/2 DETERMINANT

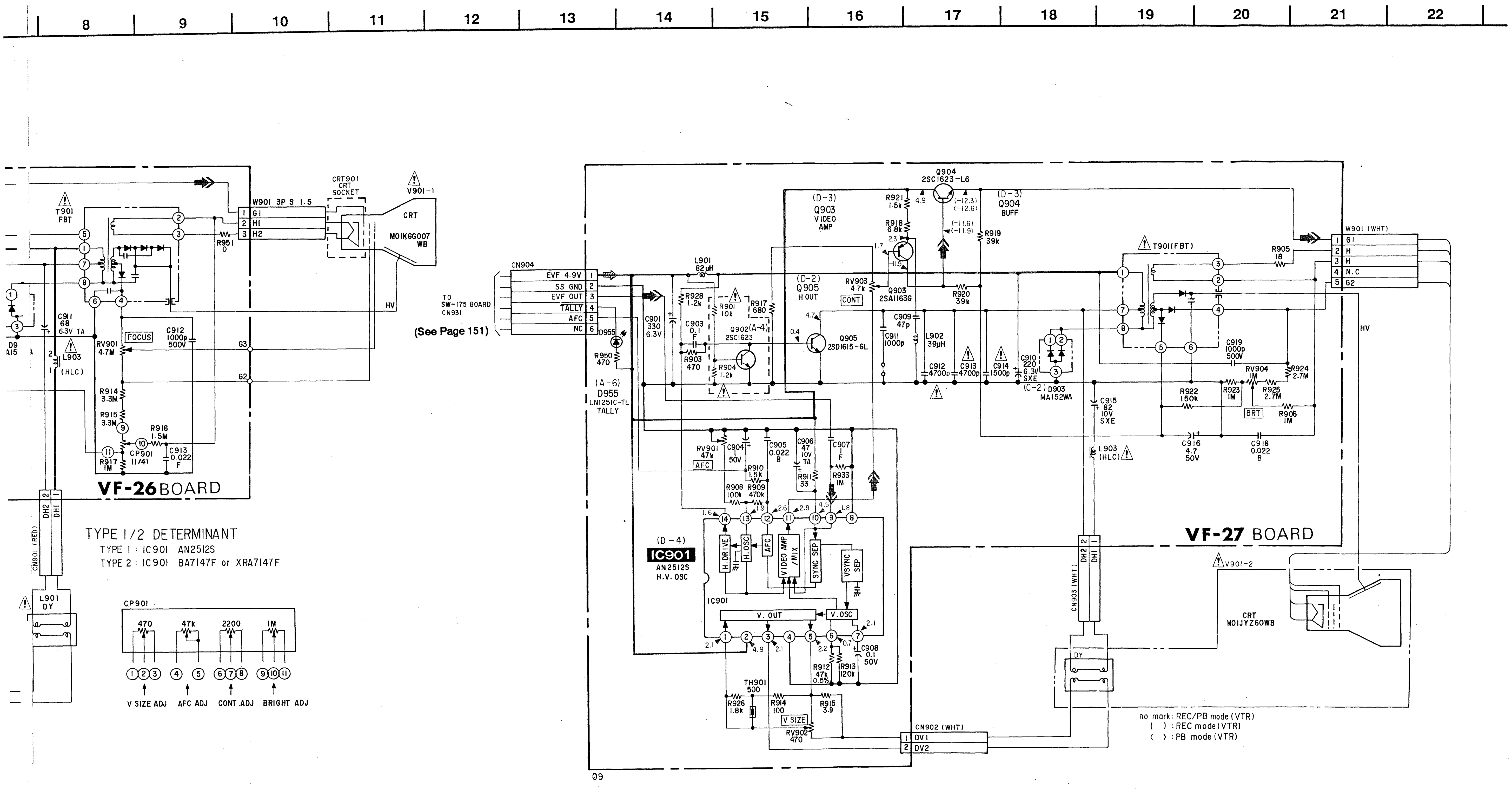
TYPE 1 : IC901 AN2512S

TYPE 2 : IC901 BA7147F or XRA7147F

09 no mark : REC/PB mode (VTR)
( ) : REC mode (VTR)
( ) : PB mode (VTR)

- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA/DATA	
REC		➡		
PB				


8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
T901 FBT
W901 3P S 1.5
CRT901 CRT SOCKET
V901-1
CRT M01KG6007 WB
R951 0
C911 68 6.3V TA
L903 (HLC)
RV901 4.7M
FOCUS
C912 1000p 500V
G3
G2
HV
R914 3.3M
R915 3.3M
R916 1.5M
CP901 (1/4)
C913 0.022 F
R917 1M
VF-26 BOARD
CN901 (RED)
DH2
DH1
L901 DY
CP901
470
47k
2200
1M
V SIZE ADJ
AFC ADJ
CONT ADJ
BRIGHT ADJ
CN904
EVF 4.9V
SS GND
EVF OUT
TALLY
AFC
NC
TO SW-175 BOARD CN931
(See Page 151)
D955
R950 470
(A-6) D955 LN1251C-TL TALLY
L901 82μH
C901 330 6.3V
R928 1.2k
C903 0.1 F
R903 470
R901 10k
R917 680
Q902(A-4) 2SC1623
R904 1.2k
Q904 2SC1623-L6
(D-3) Q903 VIDEO AMP
(D-3) Q904 BUFF
R921 1.5k
R918 6.8k
R919 39k
(D-2) Q905 H OUT
RV903 4.7k
CONT
Q903 2SA1163G
R920 39k
Q905 2SD1615-GL
C909 47p
C911 1000p
L902 39μH
C912 4700p
C913 4700p
C914 1500p
C910 220 6.3V SXE
(C-2) D903 MA152WA
T901(FBT)
R905 18
W901 (WHT)
G1
H
H
N.C
G2
C919 1000p 500V
RV904 1M
R924 2.7M
R922 150k
R923 1M
R925 2.7M
BRT
R906 1M
C915 82 10V SXE
C916 4.7 50V
C918 0.022 B
L903 (HLC)
RV901 47k
AFC
C904 1 50V
C905 0.022 B
C906 47 10V TA
C907 1 F
R910 1.5k
R911 33
R933 1M
R908 100k
R909 470k
(D-4) IC901 AN2512S H.V. OSC
H.DRIVE
H.OSC
AFC
VIDEO AMP /MIX
SYNC SEP
VSYNC SEP
IC901
V. OUT
V.OSC
R912 47k 0.5%
R913 120k
C908 0.1 50V
TH901 500
R926 1.8k
R914 100
R915 3.9
V SIZE
RV902 470
CN902 (WHT)
DV1
DV2
CN903 (WHT)
VF-27 BOARD
V901-2
CRT M01JYZ60WB
DY
09

TYPE 1/2 DETERMINANT
TYPE 1 : IC901 AN2512S
TYPE 2 : IC901 BA7147F or XRA7147F

no mark : REC/PB mode (VTR)
( ) : REC mode (VTR)
( ) : PB mode (VTR)

- **SIGNAL PATH**

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA/DATA	
REC		➡		
PB				

FU-101 (POWER), DC/DC CONVERTER BLOCK PRINTED WIRING BOARDS

— Ref. No. FU-101 BLOCK: 10000 series —

DC/DC CONVERTER board is replaced as a block, so that the PRINTED WIRING BOARD of it is omitted.

* A-7062-716-A FU-101 BOARD, COMPLETE
****

〈 DIODE 〉

D501	8-719-421-27	DIODE	MA728
D503	8-719-404-46	DIODE	MA110
D504	8-719-404-46	DIODE	MA110
D505	8-719-404-46	DIODE	MA110
D506	8-719-404-46	DIODE	MA110
D507	8-719-404-46	DIODE	MA110
D510	8-719-812-41	LED	TLR124, RED
D511	8-719-404-46	DIODE	MA110

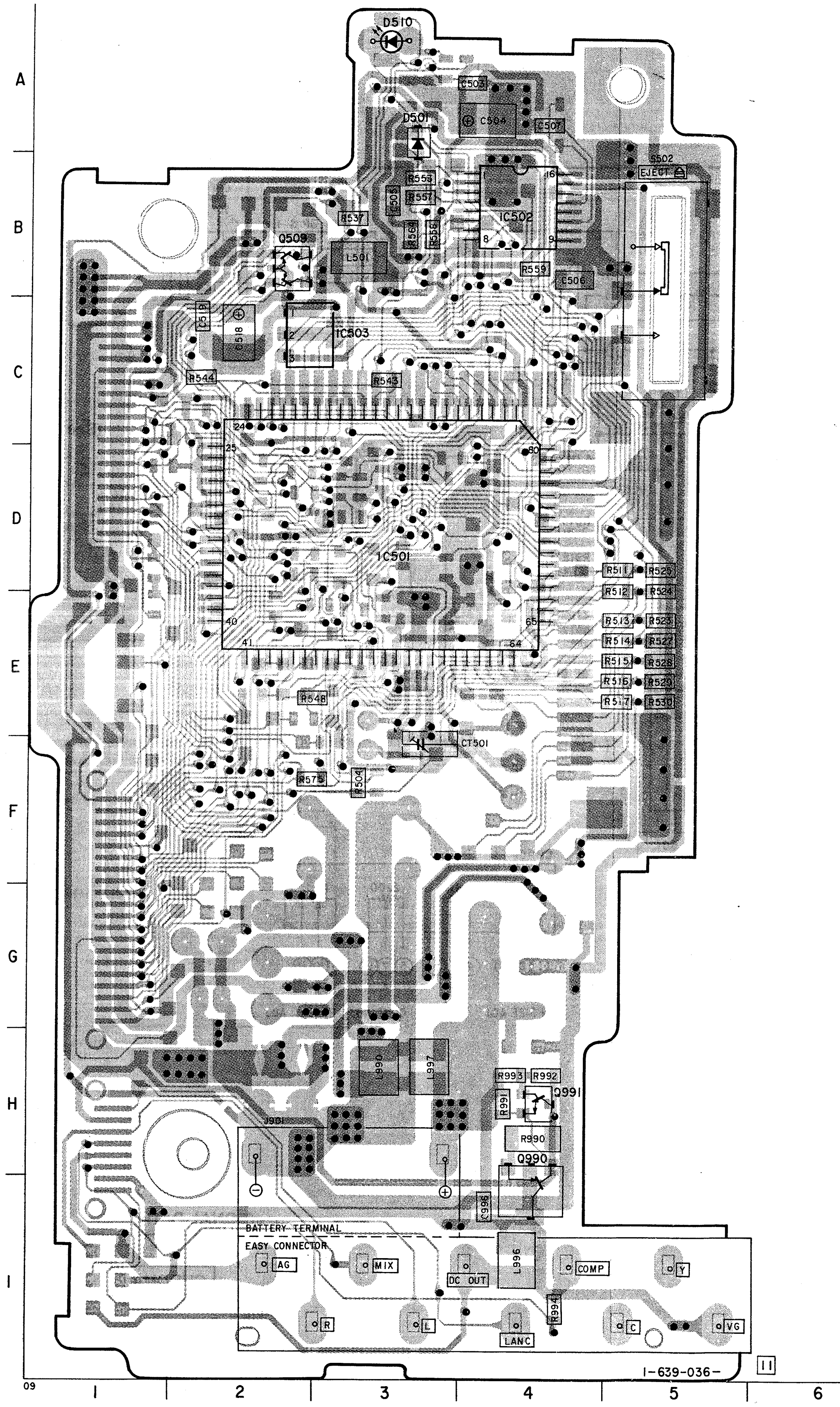
〈 IC 〉

IC501	8-759-154-18	IC	uPD75316GF-116-3B9
IC502	8-759-511-22	IC	CXA1448N
IC503	8-759-937-54	IC	S-81250HG-RD-S

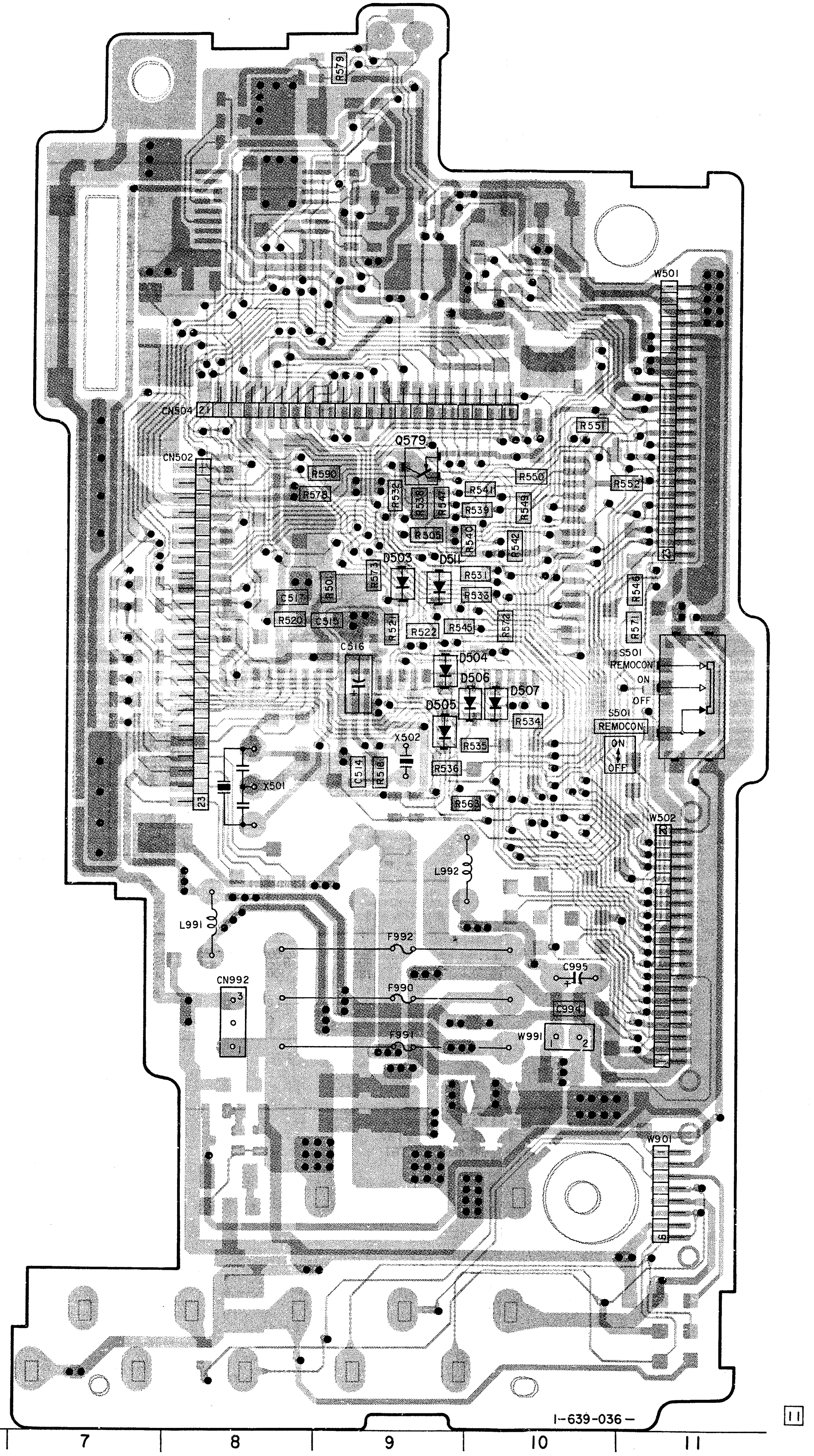
〈 TRANSISTOR 〉

Q509	8-729-904-20	TRANSISTOR	FMA2
Q579	8-729-905-12	TRANSISTOR	DTA144EU
Q990	8-729-101-07	TRANSISTOR	2SB798-DLDK
Q991	8-729-905-35	TRANSISTOR	2SC4081

FU-101 BOARD (COMPONENT SIDE)

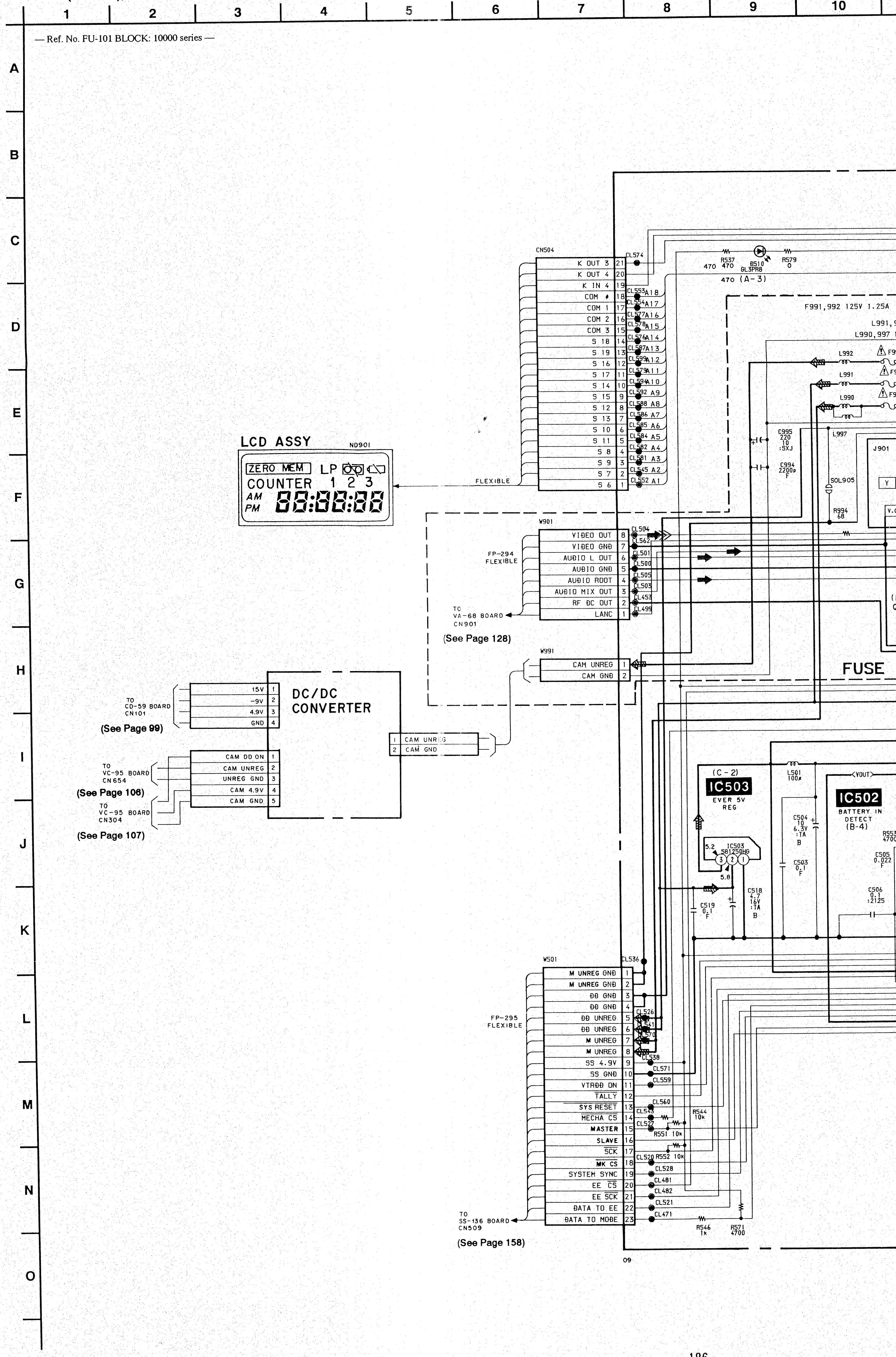

A
B
C
D
E
F
G
H
I
1
2
3
4
5
6
D510
C502
D501
C504
C507
C502
EJECT
R555
R557
IC502
R537
L501
Q509
R559
C506
D518
IC503
R544
R543
IC501
R511
R512
R513
R514
R515
R516
R517
R525
R524
R523
R527
R528
R529
R530
R548
CT501
R575
R504
L990
L997
R993
R992
R991
Q991
R990
Q990
J981
R996
BATTERY TERMINAL
EASY CONNECTOR
AG
MIX
DC OUT
L996
COMP
Y
R
L
LANC
R994
C
VG
1-639-036-
11

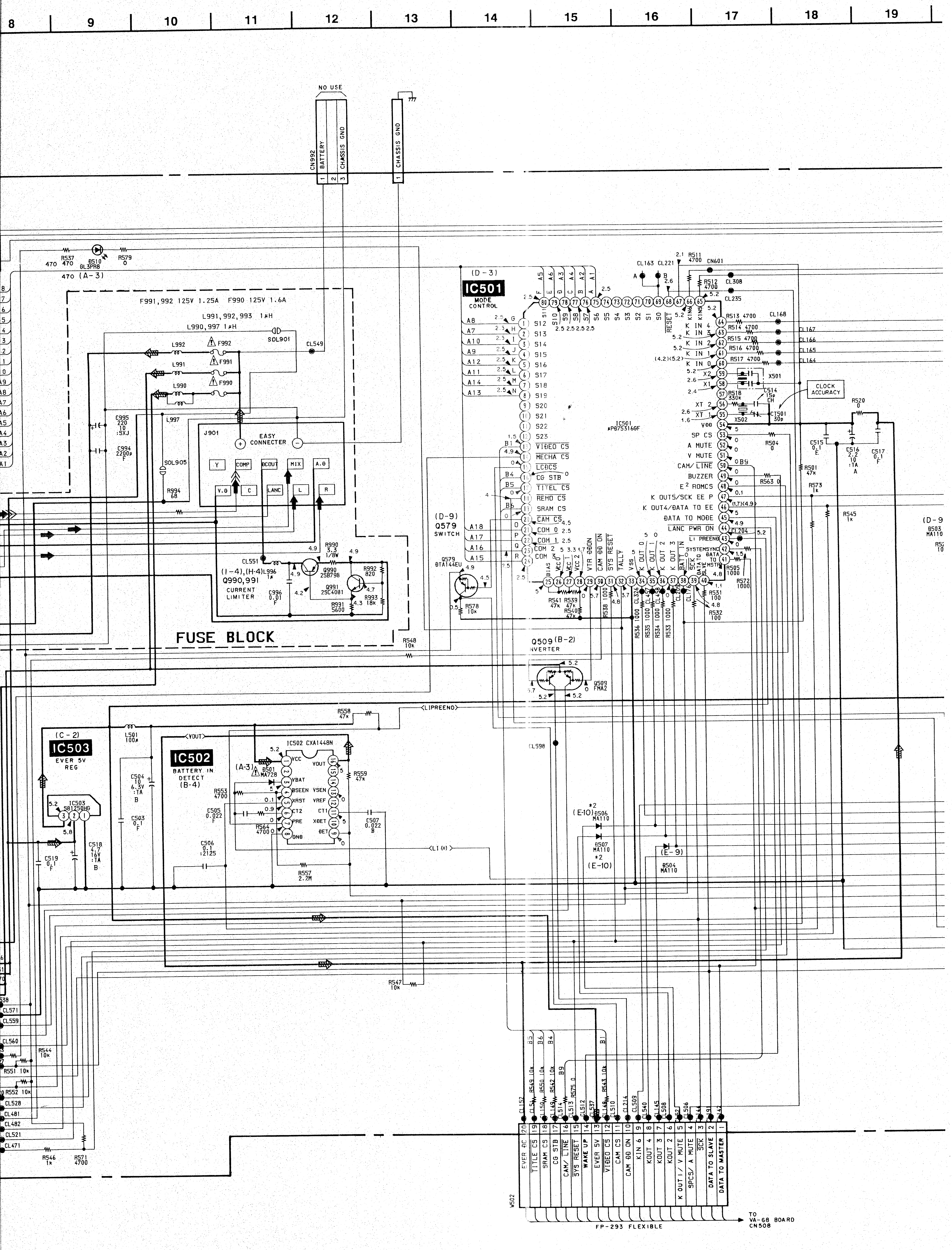
FU-101 BOARD (CONDUCTOR SIDE)

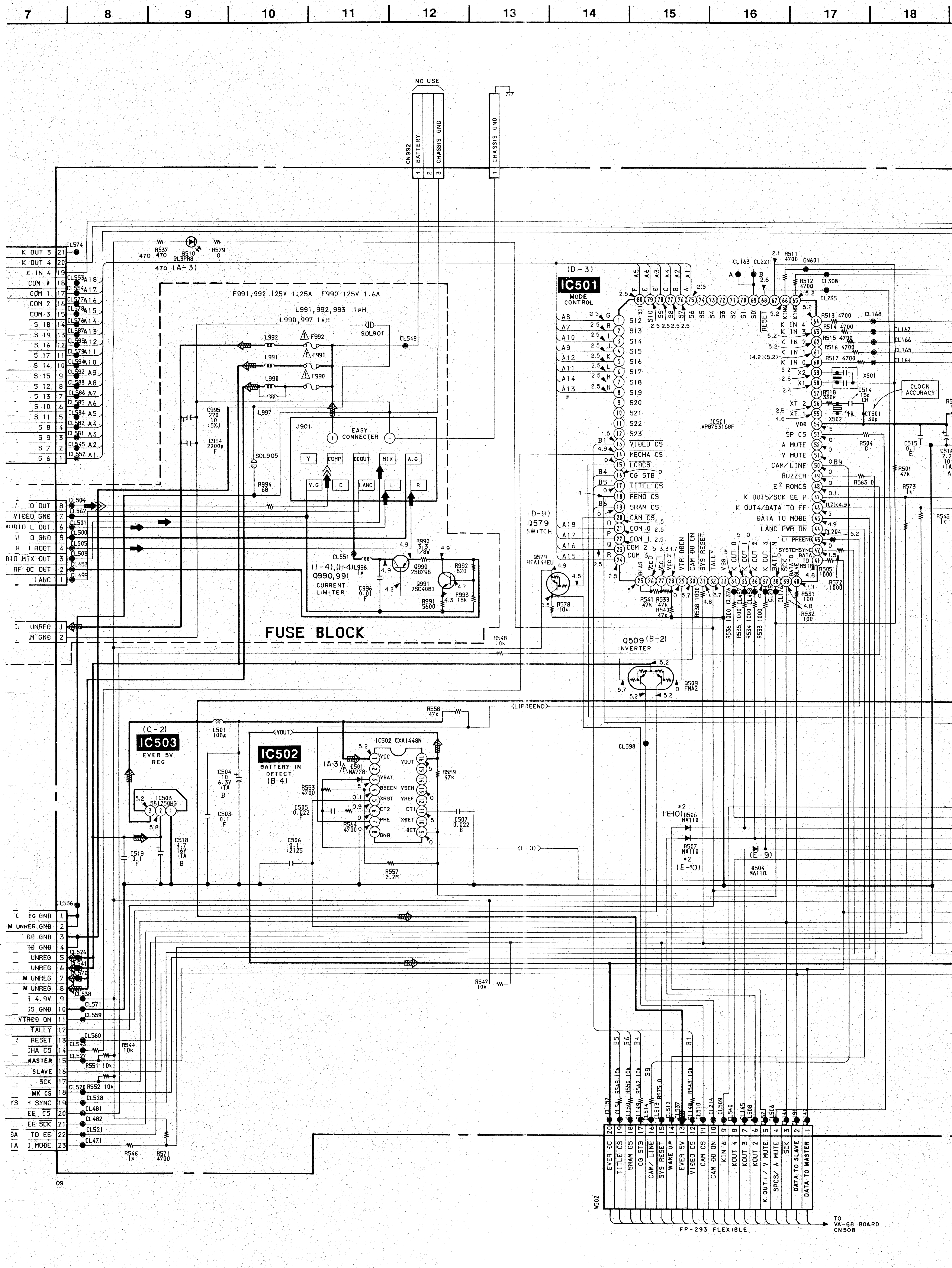

R579
W501
CN504
CN502
Q579
R551
R590
R578
R550
R552
R541
R539
R505
R549
D503
D511
R531
R533
R517
R520
R515
R516
R522
R545
R548
R571
D504
D506
D505
D507
S501
REMOCON
ON
OFF
X502
R535
R534
R536
X501
R569
W502
L992
L991
F992
CN992
C995
F990
C994
F991
W991
W901
7
8
9
10
11
1-639-036-
11

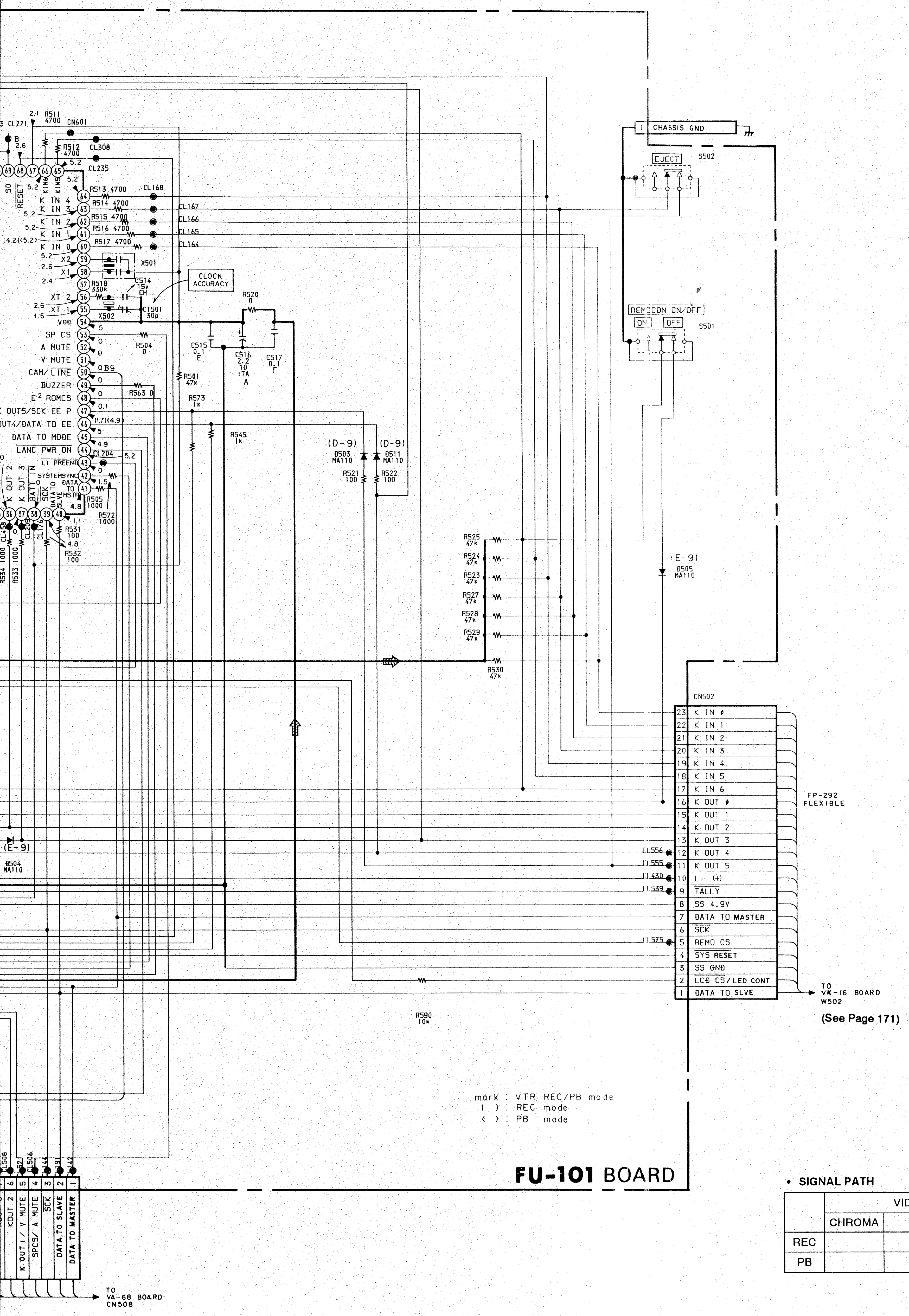
FU-101 (POWER), DC/DC CONVERTER BLOCK SCHEMATIC DIAGRAMS

— Ref. No. FU-101 BLOCK: 10000 series —


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
LCD ASSY
ND901
ZERO MEM
LP
COUNTER 1 2 3
AM
PM
88:88:88
FLEXIBLE
CN504
K OUT 3 21
K OUT 4 20
K IN 4 19
COM # 18
COM 1 17
COM 2 16
COM 3 15
S 18 14
S 19 13
S 16 12
S 17 11
S 14 10
S 15 9
S 12 8
S 13 7
S 10 6
S 11 5
S 8 4
S 9 3
S 7 2
S 6 1
CL574
CL553 A18
CL554 A17
CL577 A16
CL578 A15
CL576 A14
CL587 A13
CL580 A12
CL579 A11
CL594 A10
CL592 A9
CL588 A8
CL586 A7
CL585 A6
CL584 A5
CL582 A4
CL581 A3
CL545 A2
CL552 A1
R537 470
470
D510 GL3PR8
R579 0
470 (A-3)
F991,992 125V 1.25A
L991,
L990,997
L992
L991
L990
F9
C995 220 10 :SXJ
C994 2200p F
L997
J901
Y
SOL905
R994 68
W901
VIDEO OUT 8
VIDEO GND 7
AUDIO L OUT 6
AUDIO GND 5
AUDIO ROOT 4
AUDIO MIX OUT 3
RF DC OUT 2
LANC 1
CL504
CL562
CL501
CL500
CL505
CL503
CL453
CL499
FP-294 FLEXIBLE
TO VA-68 BOARD CN901
(See Page 128)
W991
CAM UNREG 1
CAM GND 2
FUSE
DC/DC CONVERTER
15V 1
-9V 2
4.9V 3
GND 4
TO CD-59 BOARD CN101
(See Page 99)
CAM DD ON 1
CAM UNREG 2
UNREG GND 3
CAM 4.9V 4
CAM GND 5
TO VC-95 BOARD CN654
(See Page 106)
TO VC-95 BOARD CN304
(See Page 107)
1 CAM UNREG
2 CAM GND
(C-2)
IC503
EVER 5V REG
5.2
IC503 S81250HG
5.8
C519 0.1 F
C518 4.7 16V :TA B
L501 100μ
<YOUT>
IC502
BATTERY IN DETECT
(B-4)
C504 10 6.3V :TA B
C503 0.1 F
R553 4700
C505 0.022 F
C506 0.1 :2125
W501
CL536
M UNREG GND 1
M UNREG GND 2
DD GND 3
DD GND 4
DD UNREG 5
DD UNREG 6
M UNREG 7
M UNREG 8
SS 4.9V 9
SS GND 10
VTRDD ON 11
TALLY 12
SYS RESET 13
MECHA CS 14
MASTER 15
SLAVE 16
SCK 17
MK CS 18
SYSTEM SYNC 19
EE CS 20
EE SCK 21
DATA TO EE 22
DATA TO MODE 23
CL526
CL541
CL570
CL538
CL571
CL559
CL560
CL543
CL527
R544 10k
R551 10k
CL520
R552 10k
CL528
CL481
CL482
CL521
CL471
R546 1k
R571 4700
FP-295 FLEXIBLE
TO SS-136 BOARD CN509
(See Page 158)
09


8
9
10
11
12
13
14
15
16
17
18
19
NO USE
CN992
BATTERY
CHASSIS GND
CHASSIS GND
R537 470
470
D510 GL3PR8
R579 0
470 (A-3)
F991,992 125V 1.25A F990 125V 1.6A
L991,992,993 1μH
L990,997 1μH
SOL901
CL549
L992
F992
L991
F991
L990
F990
C995 220 10 :SXJ
C994 2200p F
L997
SOL905
R994 68
J901
EASY CONNECTER
Y
COMP
DCOUT
MIX
A.G
V.G
C
LANC
L
R
CL551
(I-4),(H-4)
Q990,991
CURRENT LIMITER
L996 1μ
C996 0.01 F
Q990 2SB798
R990 3.3 1/8W
Q991 2SC4081
R992 820
R993 18k
R991 5600
FUSE BLOCK
R548 10k
(D-3)
IC501
MODE CONTROL
IC501 μPD75316GF
VIDEO CS
MECHA CS
LCDCS
CG STB
TITEL CS
REMO CS
SRAM CS
CAM CS
COM 0
COM 1
COM 2
COM 3
BIAS
VTR ΦDON
CAM ΦD ON
SYS RESET
TALLY
K OUT 0
K OUT 1
K OUT 2
K OUT 3
BATT IN
SCK
DATA TO SLAVE
K IN 4
K IN 3
K IN 2
K IN 1
K IN 0
X2
X1
XT 2
XT 1
VDD
SP CS
A MUTE
V MUTE
CAM/LINE
BUZZER
E² ROMCS
K OUT5/SCK EE P
K OUT4/DATA TO EE
DATA TO MODE
LANC PWR ON
LI PREEND
SYSTEMSYNC
DATA TO MSTR
RESET
CL163 CL221
R511 4700
CN601
R512 4700
CL308
CL235
R513 4700
R514 4700
R515 4700
R516 4700
R517 4700
CL168
CL167
CL166
CL165
CL164
X501
R518 330k
C514 15p CH
X502
CT501 30p
CLOCK ACCURACY
R520 0
C515 0.1 F
C516 2.2 10 :TA A
C517 0.1 F
R504 0
R501 47k
R563 0
R573 1k
R545 1k
R505 1000
R572 1000
R531 100
R532 100
(D-9)
Q579 SWITCH
Q579 DTA144EU
R578 10k
R541 47k
R539 47k
R540 47k
R538 1000
R536 1000
R535 1000
R534 1000
R533 1000
Q509 (B-2) INVERTER
Q509 FMA2
(D-9) D503 MA110
<LIPREEND>
R558 47k
L501 100μ
(C-2)
IC503
EVER 5V REG
IC503 S81250HG
C504 10 6.3V :TA B
C503 0.1 F
C519 0.1 F
C518 4.7 16V :TA B
<YOUT>
IC502
BATTERY IN DETECT (B-4)
IC502 CXA1448N
(A-3) D501 MA728
VCC
VBAT
BSEEN
XRST
CT2
PRE
GND
YOUT
YSEN
VREF
CT1
XDET
DET
R559 47k
R553 4700
C505 0.022 F
R564 4700
C507 0.022 B
C506 0.1 :2125
R557 2.2M
<LI(+)>
CL598
*2 (E-10) D506 MA110
D507 MA110 *2 (E-10)
(E-9) D504 MA110
R547 10k
R544 10k
R551 10k
R552 10k
CL571
CL559
CL560
CL528
CL481
CL482
CL521
CL471
R546 1k
R571 4700
R549 10k
R550 10k
R542 10k
R575 0
R543 10k
W502
EVER AC
TITLE CS
SRAM CS
CG STB
CAM/LINE
SYS RESET
WAKE UP
EVER 5V
VIDEO CS
CAM CS
CAM ΦD ON
KIN 6
KOUT 4
KOUT 3
KOUT 2
K OUT 1/V MUTE
SPCS/A MUTE
SCK
DATA TO SLAVE
DATA TO MASTER
FP-293 FLEXIBLE
TO VA-68 BOARD CN508


7
8
9
10
11
12
13
14
15
16
17
18
NO USE
CN992
BATTERY
CHASSIS GND
CHASSIS GND
K OUT 3
K OUT 4
K IN 4
COM 1
COM 2
COM 3
S 18
S 19
S 16
S 17
S 14
S 15
S 12
S 13
S 10
S 11
S 8
S 9
S 7
S 6
R537 470
D510 GL3PR8
R579 0
470 (A-3)
F991,992 125V 1.25A F990 125V 1.6A
L991,992,993 1μH
L990,997 1μH
F992
F991
F990
L992
L991
L990
L997
SOL901
SOL905
CL549
C995 220 10 :SXJ
C994 2200p F
R994 68
J901
EASY CONNECTER
Y
COMP
BCOUT
MIX
A.G
V.G
C
LANC
L
R
CL551
(I-4),(H-4)
Q990,991
CURRENT LIMITER
L996 1μ
Q990 2SB798
Q991 2SC4081
R990 3.3 1/8W
R992 820
R993 18k
R991 5600
C996 0.01 F
FUSE BLOCK
VIDEO OUT
VIDEO GND
AUDIO L OUT
AUDIO GND
ROOT
BIO MIX OUT
RF DC OUT
LANC
UNREG
GND
R548 10k
(D-3)
IC501
MODE CONTROL
IC501 μPD75316GF
A8
A7
A10
A9
A12
A11
A14
A13
A18
A17
A16
A15
S12
S13
S14
S15
S16
S17
S18
S19
S20
S21
S22
S23
VIDEO CS
MECHA CS
LCDCS
CG STB
TITEL CS
REMO CS
SRAM CS
CAM CS
COM 0
COM 1
COM 2
COM 3
BIAS
VCC 0
VCC 1
VCC 2
VTR DDON
CAM DD ON
SYS RESET
TALLY
VSS
K OUT 0
K OUT 1
K OUT 2
K OUT 3
BATT IN
SCK
DATA TO SLAVE
RESET
K IN 4
K IN 3
K IN 2
K IN 1
K IN 0
X2
X1
XT 2
XT 1
VDD
SP CS
A MUTE
V MUTE
CAM/LINE
BUZZER
E² ROMCS
K OUT5/SCK EE P
K OUT4/DATA TO EE
DATA TO MODE
LANC PWR ON
LI PREEND
SYSTEMSYNC
DATA TO MSTR
CL163 CL221
R511 4700
CN601
R512 4700
CL308
CL235
R513 4700
R514 4700
R515 4700
R516 4700
R517 4700
CL168
CL167
CL166
CL165
CL164
X501
X502
R518 330k
C514 15p CH
CT501 30p
CLOCK ACCURACY
R504 0
C515 0.1 F
R501 47k
R563 0
R573 1k
R545 1k
CL204
R505 1000
R572 1000
R531 100
R532 100
R541 47k
R539 47k
R540 47k
R538 1000
R536 1000
R535 1000
R534 1000
R533 1000
(D-9)
Q579 SWITCH
Q579 DTA144EU
R578 10k
Q509 (B-2)
INVERTER
Q509 FMA2
R558 47k
LIPREEND
CL598
(C-2)
IC503
EVER 5V REG
IC503 S81250HG
L501 100μ
C504 10 6.3V :TA B
C503 0.1 F
C519 0.1 F
C518 4.7 16V :TA B
VOUT
IC502 CXA1448N
IC502
BATTERY IN DETECT
(B-4)
(A-3)
D501 MA728
VCC
VBAT
BSEEN
XRST
CT2
PRE
GND
VOUT
VSEN
VREF
CT1
XDET
DET
R553 4700
R564 4700
R559 47k
C505 0.022 F
C506 0.1 :2125
C507 0.022 B
R557 2.2M
LI (+)
*2 (E-10) D506 MA110
D507 MA110 *2 (E-10)
(E-9)
D504 MA110
CL536
EG GND
UNREG GND
DD GND
DD GND
UNREG
UNREG
UNREG
UNREG
4.9V
SS GND
VTRDD ON
TALLY
RESET
CHA CS
MASTER
SLAVE
SCK
MK CS
SYNC
EE CS
EE SCK
TO EE
MODE
R547 10k
R544 10k
R551 10k
R552 10k
R546 1k
R571 4700
09
R549 10k
R550 10k
R542 10k
R575 0
R543 10k
B5
B6
B4
B9
B1
EVER DC
TITLE CS
SRAM CS
CG STB
CAM/LINE
SYS RESET
WAKE UP
EVER 5V
VIDEO CS
CAM CS
CAM DD ON
KIN 6
KOUT 3
KOUT 2
K OUT 1/V MUTE
SPCS/A MUTE
SCK
DATA TO SLAVE
DATA TO MASTER
W502
FP-293 FLEXIBLE
TO VA-68 BOARD CN508

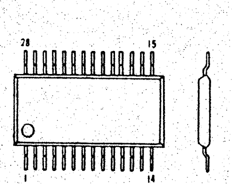

CN601
CL308
CL235
CL168
CL167
CL166
CL165
CL164
X501
X502
CLOCK ACCURACY
R520 0
C515 0.1 E
C516 2.2 10 :TA A
C517 0.1 F
R501 47k
R573 1k
R545 1k
(D-9) D503 MA110
(D-9) D511 MA110
R521 100
R522 100
SP CS
A MUTE
V MUTE
CAM/LINE
BUZZER
E² ROMCS
DATA TO MODE
LANC PWR ON
CHASSIS GND
EJECT
S502
REMOCON ON/OFF
ON
OFF
S501
(E-9) D505 MA110
R525 47k
R524 47k
R523 47k
R527 47k
R528 47k
R529 47k
R530 47k
CN502
23 K IN 0
22 K IN 1
21 K IN 2
20 K IN 3
19 K IN 4
18 K IN 5
17 K IN 6
16 K OUT 0
15 K OUT 1
14 K OUT 2
13 K OUT 3
12 K OUT 4
11 K OUT 5
10 LI (+)
9 TALLY
8 SS 4.9V
7 DATA TO MASTER
6 SCK
5 REMO CS
4 SYS RESET
3 SS GND
2 LCD CS/LED CONT
1 DATA TO SLVE
FP-292 FLEXIBLE
TO VK-16 BOARD W502
(See Page 171)
R590 10k
(E-9) D504 MA110
mark : VTR REC/PB mode
( ) : REC mode
< > : PB mode
FU-101 BOARD
K OUT1/V MUTE
SPCS/A MUTE
SCK
DATA TO SLAVE
DATA TO MASTER
TO VA-68 BOARD CN508

• **SIGNAL PATH**

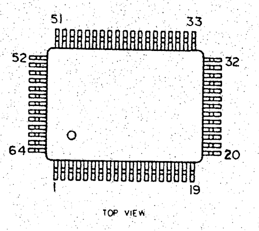
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA/DATA	
REC				
PB			⇨⇨	⇨

4-3. SEMICONDUCTORS

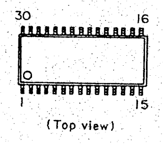
8464A-15LLPF


28
15
1
14
(TOP VIEW)

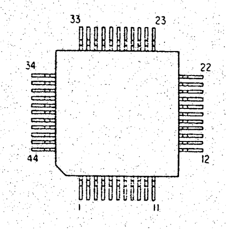
CF79028PG


51
33
52
32
64
20
1
19
TOP VIEW

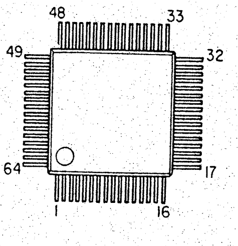
CXA1127M


30
16
1
15
(Top view)

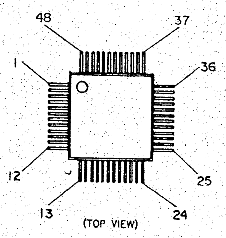
CXA1204Q
M51285BGP


33
23
34
22
44
12
1
11

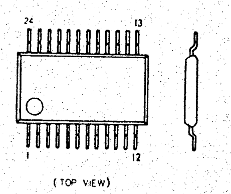
CXA1207R
MC68HC11E9FU


48
33
49
32
64
17
1
16

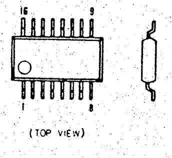
CXA1208R
CXA1392R
CXA1488R
MB673198U
MB8783PFV


48
37
1
36
12
25
13
24
(TOP VIEW)

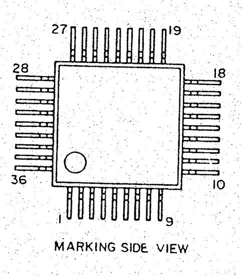
CXA1393AN


24
13
1
12
(TOP VIEW)

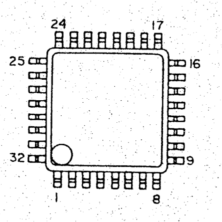
CXA1488R
CXL5502M
MC14094BPF


16
9
1
8
(TOP VIEW)

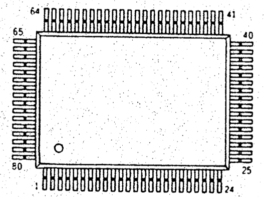
CXA1536Q


27
19
28
18
36
10
1
9
MARKING SIDE VIEW

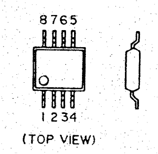
CXD1159Q


24
17
25
16
32
9
1
8

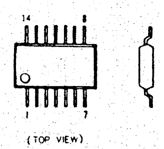
CXP80116
S-81250HG


64
41
65
40
80
25
1
24
MARKING SIDE VIEW

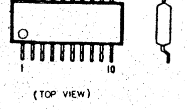
LA7293M
LM393DR
M5201FP
MM1036XF
NJM2233AM
NJM2234M
NJM2235M
RC3414M


8765
1234
(TOP VIEW)

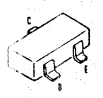
LM324DR
TL1596CDB
XRU4066BF


14
8
1
7
(TOP VIEW)

M62352GP
UPD6451AGT
UPD7564G


20
11
1
10
(TOP VIEW)

2SA1576S
2SB1218
2SB624
2SC2223
2SC4081R
2SD1819A
DTC115EU
DTC144EK
UN5213
UN5215



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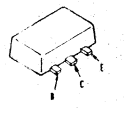

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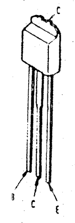

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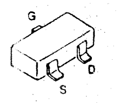
2SK1332



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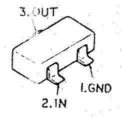
DTC114EU
DTC114TU
DTC144EU
DTC144WU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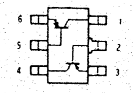
1.GND
2.IN

FC101



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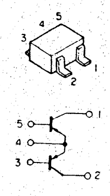

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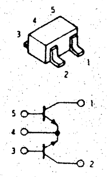

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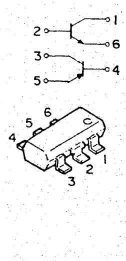
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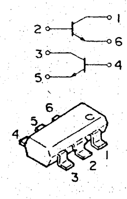
IMH8
XN6213
XN6215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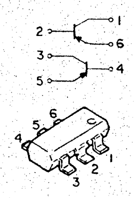
VN5213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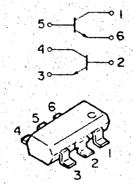
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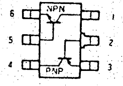
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PNP
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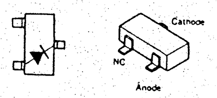
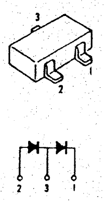
2
3

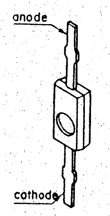
ISS196
SB10-05CP


Cathode
NC
Anode

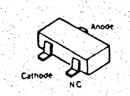
1SS226



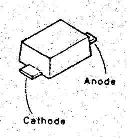
IT32


anode
cathode

DAN202U


Anode
Cathode
NC

DTZ12
DTZ4.3
DTZ5.1
MA728


Anode
Cathode

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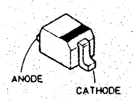
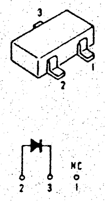

ANODE
CATHODE

RD9.1M
SB05-05CP



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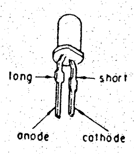
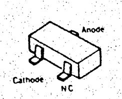
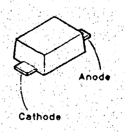

long
short
anode
cathode

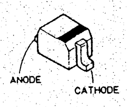
DAN202U



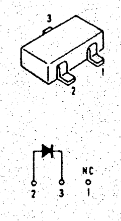
DTZ12
DTZ4.3
DTZ5.1
MA728



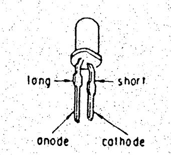
MA110



RD9.1M
SB05-05CP



TLR124



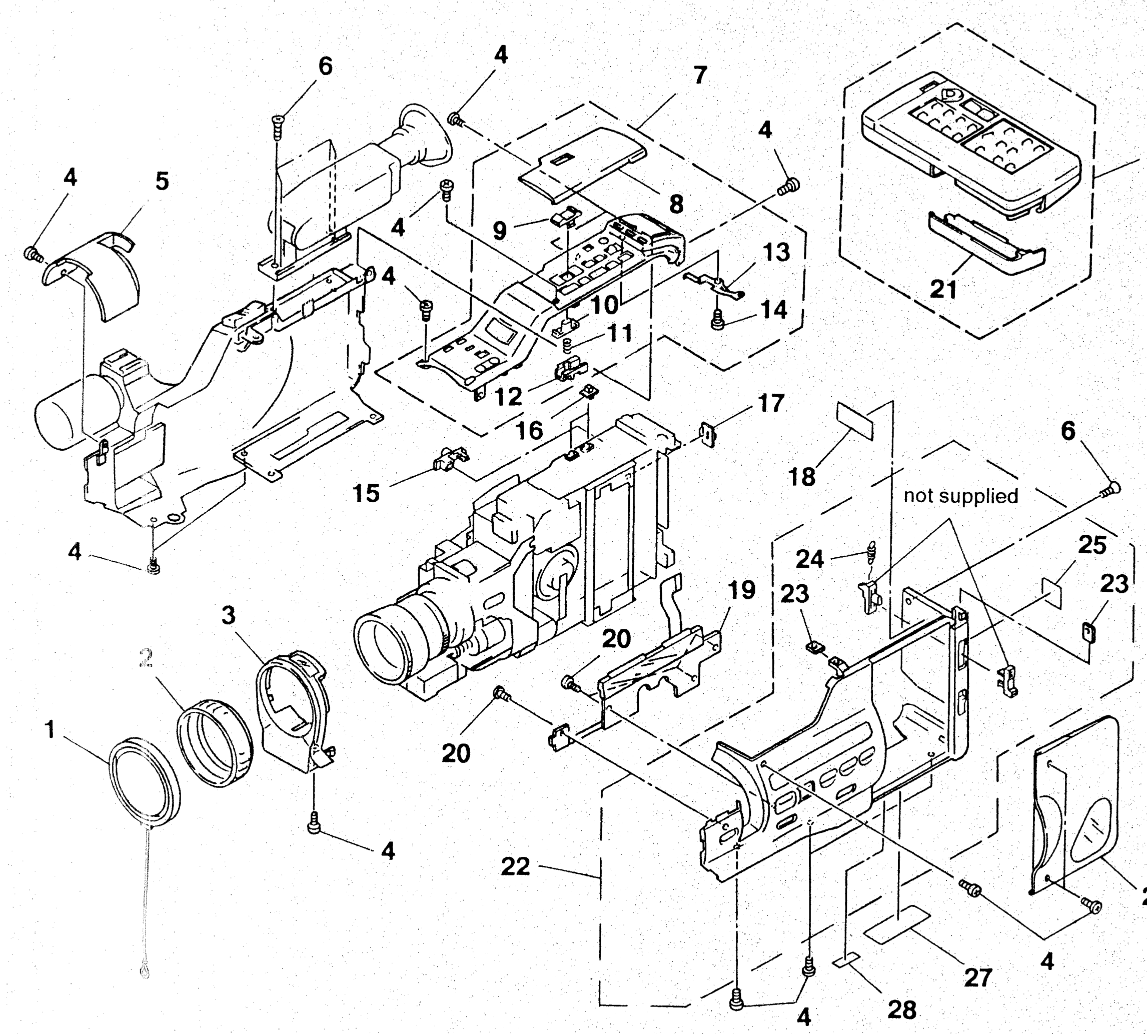
SECTION 5
EXPLODED VIEWS

NOTE:
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (WHITE)...(RED)
  ↑ ↑
  Parts color Cabinet's color
- Items marked " ∗ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

The components identifi
mark ⚠ or dotted line with r
are critical for safety.
Replace only with part r
specified.

Les composants identifiés p
marque ⚠ sont critiques p
sécurité.
Ne les remplacer que pa
piéce portant le numéro spe

5-1. CABINET (R) AND CABINET (U) ASSEMBLIES



Ref. No.	Part No.	Description	Remark
1	A-7091-184-A	CAP BLOCK ASSY, HOOD	
2	3-728-269-01	HOOD	
3	X-3940-501-1	COVER ASSY, HEAD	
4	3-719-381-01	SCREW (M2X4)	
5	3-942-282-01	COVER, LENS	
6	3-719-831-21	SCREW (M2X4)	
7	X-3940-502-1	CABINET (UPPER) ASSY (CCD-F501)	
	X-3940-772-1	CABINET (UPPER) ASSY (CCD-F555)	
8	3-942-271-01	LID, VTR (CCD-F501)	
	3-942-271-61	LID, VTR (CCD-F555)	
9	3-744-723-01	BUTTON (10), POWER	
10	*3-718-257-11	BUTTON, PUSH, POWER	
11	3-303-973-00	SPRING, COMPRESSION	
12	3-744-815-01	PLATE, BLIND, POWER	
13	3-942-242-01	SPRING, LEAF, CLICK	
14	3-713-790-01	SCREW (M2X5), TAPPING, P3	

Ref. No.	Part No.	Description
15	3-744-897-01	KNOB, BILINGUAL
16	3-942-255-01	BUTTON, EDIT
17	3-744-875-03	KNOB, REMOTE
18	*3-744-888-01	LABEL, FUSE (CCD-F501)
19	*A-7071-400-A	CK-ZK MOUNT
20	3-713-790-21	SCREW (M2X6), TAPPING, P3
21	3-724-854-01	CASE, BATTERY
22	X-3940-503-1	CABINET (R) ASSY
23	3-718-233-01	NUT, PLATE
24	3-674-402-00	SPRING, TENSION
25	*3-719-683-01	LABEL, BATTERY FITTING
26	X-3940-500-1	LID ASSY, CASSETTE
27	*3-942-249-01	LABEL, MODEL NUMBER (U/C) (CCD-F
	*3-943-352-01	LABEL, MODEL NUMBER (E) (CCD-F55
28	*3-704-367-01	LABEL (CCD-F501; US MODEL)
29	1-465-395-41	COMMANDER, REMOTE (RMT-502)

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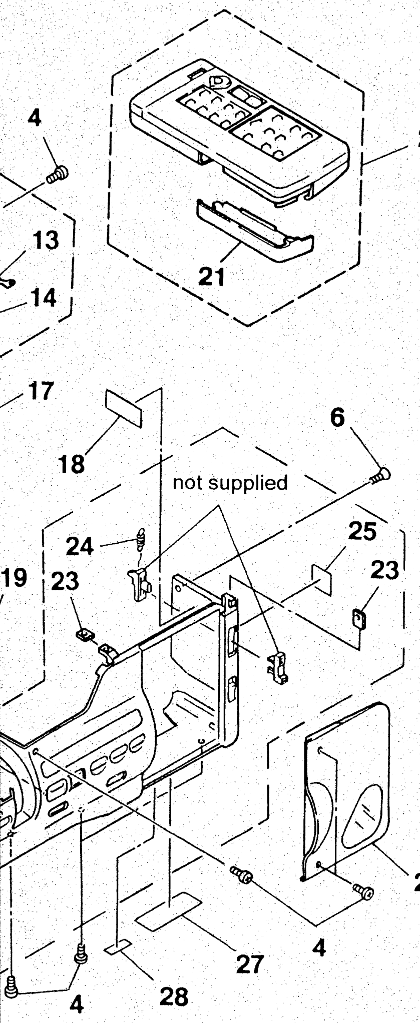
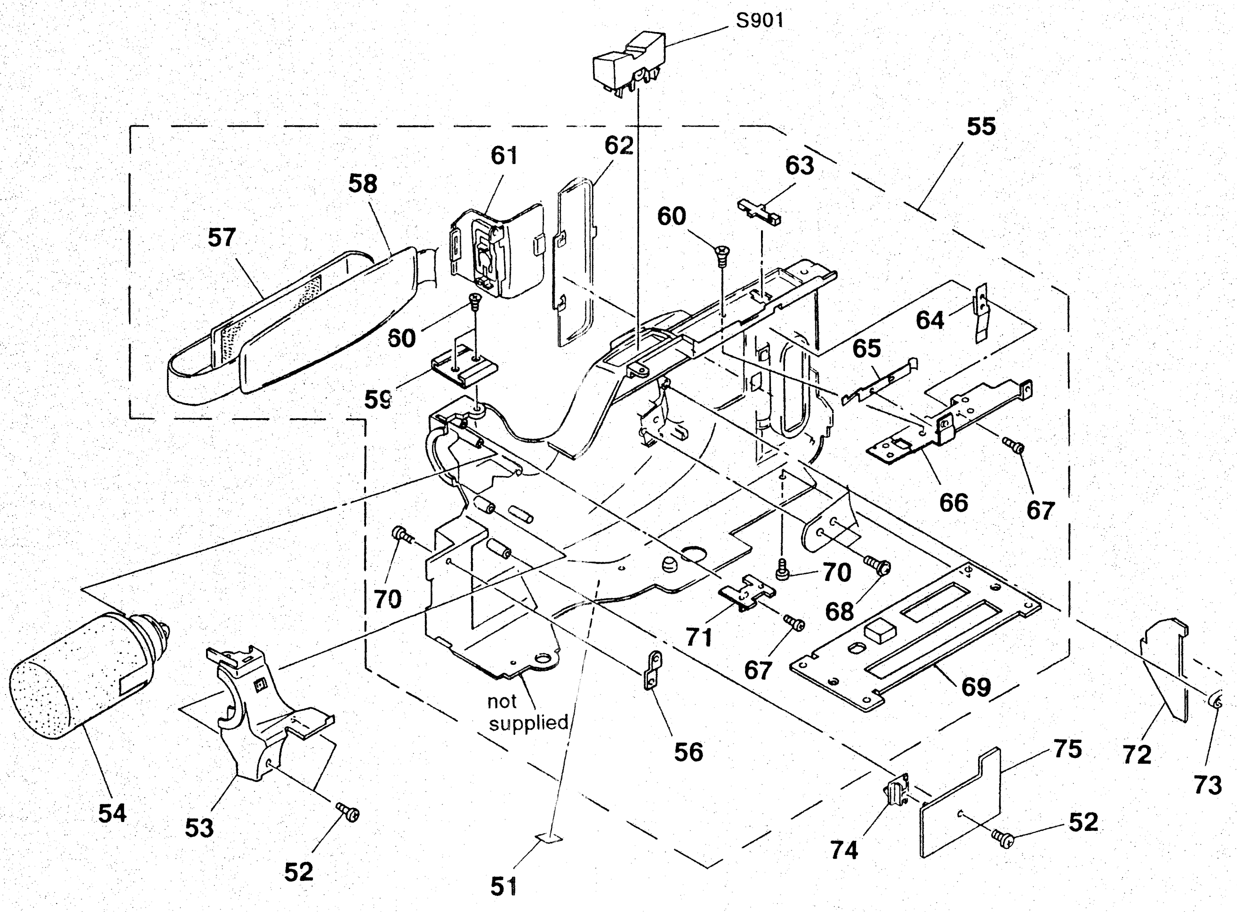
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.



No.	Description	Remark
-897-01	KNOB, BILINGUAL	
-255-01	BUTTON, EDIT	
-875-03	KNOB, REMOTE	
-888-01	LABEL, FUSE (CCD-F501)	
71-400-A	CK-ZK MOUNT	
-790-21	SCREW (M2X6), TAPPING, P3	
-854-01	CASE, BATTERY	
40-503-1	CABINET (R) ASSY	
-233-01	NUT, PLATE	
-402-00	SPRING, TENSION	
-683-01	LABEL, BATTERY FITTING	
40-500-1	LID ASSY, CASSETTE	
-249-01	LABEL, MODEL NUMBER (U/C) (CCD-F501)	
-352-01	LABEL, MODEL NUMBER (E) (CCD-F555)	
-367-01	LABEL (CCD-F501; US MODEL)	
-395-41	COMMANDER, REMOTE (RMT-502)	

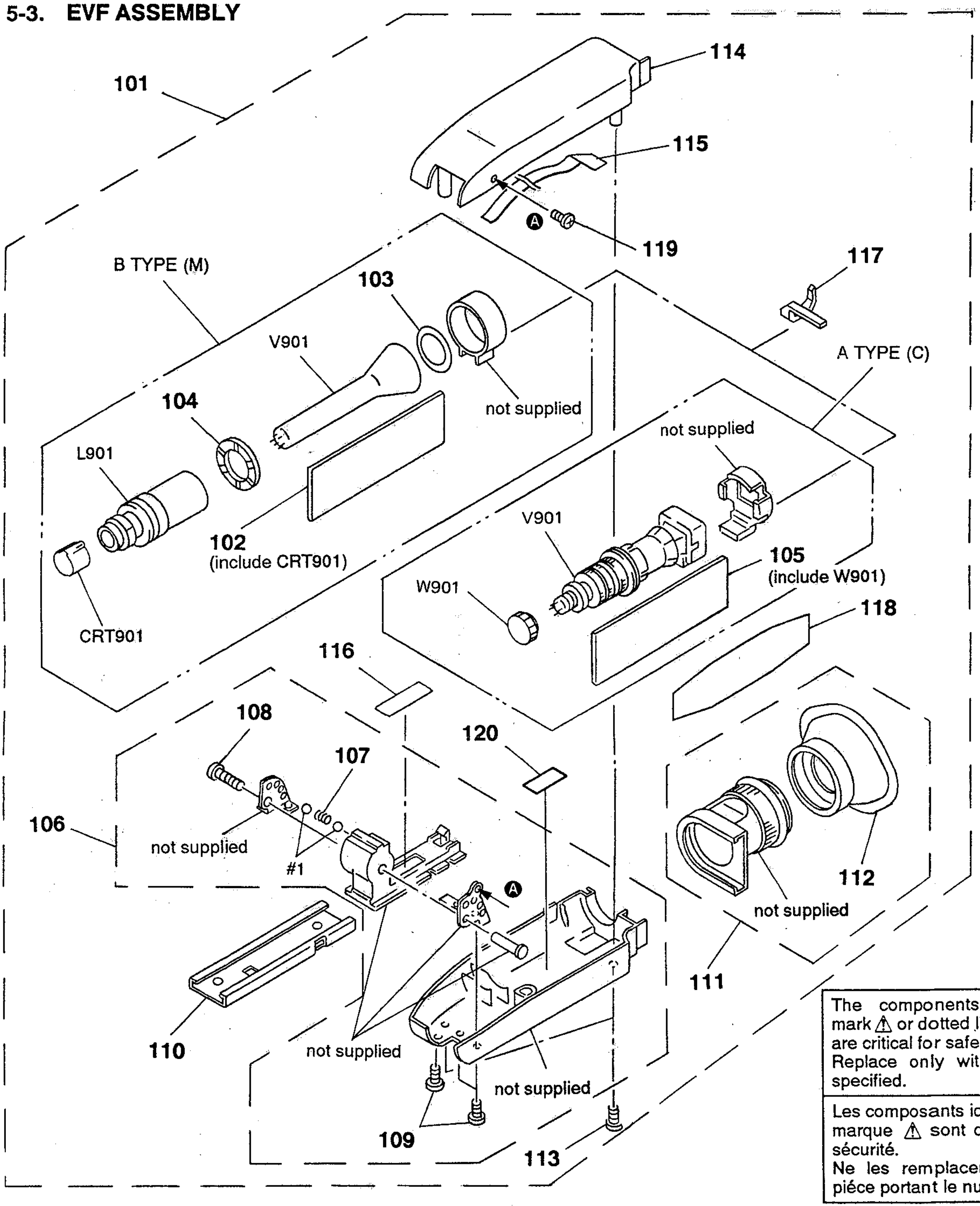
5-2. CABINET (L) ASSEMBLY



Ref. No.	Part No.	Description	Remark
51	*3-704-256-01	LABEL, CAUTION (CCD-F501; US MODEL)	
52	3-713-790-21	SCREW (M2X6), TAPPING, P3	
53	3-942-280-01	HOUSING, MICROPHONE	
54	*8-814-268-00	MICROPHONE C-2033 SET (STEREO)	
55	A-7081-566-A	CABINET (L) BLOCK ASSY	
56	3-942-241-01	BRACKET, LC	
57	3-739-866-81	BELT, GRIP	
58	3-724-591-01	PAD, GRIP	
59	3-724-511-01	SHOE, ACCESSORY	
60	3-719-831-21	SCREW (M2X4)	
61	X-3744-825-1	KNOB ASSY, SP	
62	3-744-874-41	LID, CONNECTOR	
63	3-744-709-01	LOCK, SLIDE	
64	3-942-238-01	SPRING, AV	

Ref. No.	Part No.	Description
65	3-744-876-01	SPRING, EVF LOCK
66	3-942-252-01	PLATE, VF
67	3-713-790-11	SCREW (M2X5), TAPPING, P3
68	3-669-480-21	+ PTPWH 2
69	X-3940-497-1	SHEET METAL ASSY, TRIPOD
70	3-719-381-01	SCREW (M2X4)
71	3-942-240-01	BRACKET, SHOE
72	*A-7071-402-A	SW-175 BOARD, COMPLETE
73	3-744-808-01	RETAINER, SW
74	3-942-244-01	KNOB, MC
75	*A-7062-718-A	MC-77 BOARD, COMPLETE
S901	1-572-692-11	SWITCH, PUSH (ZOOM SWITCH UNIT

5-3. EVF ASSEMBLY

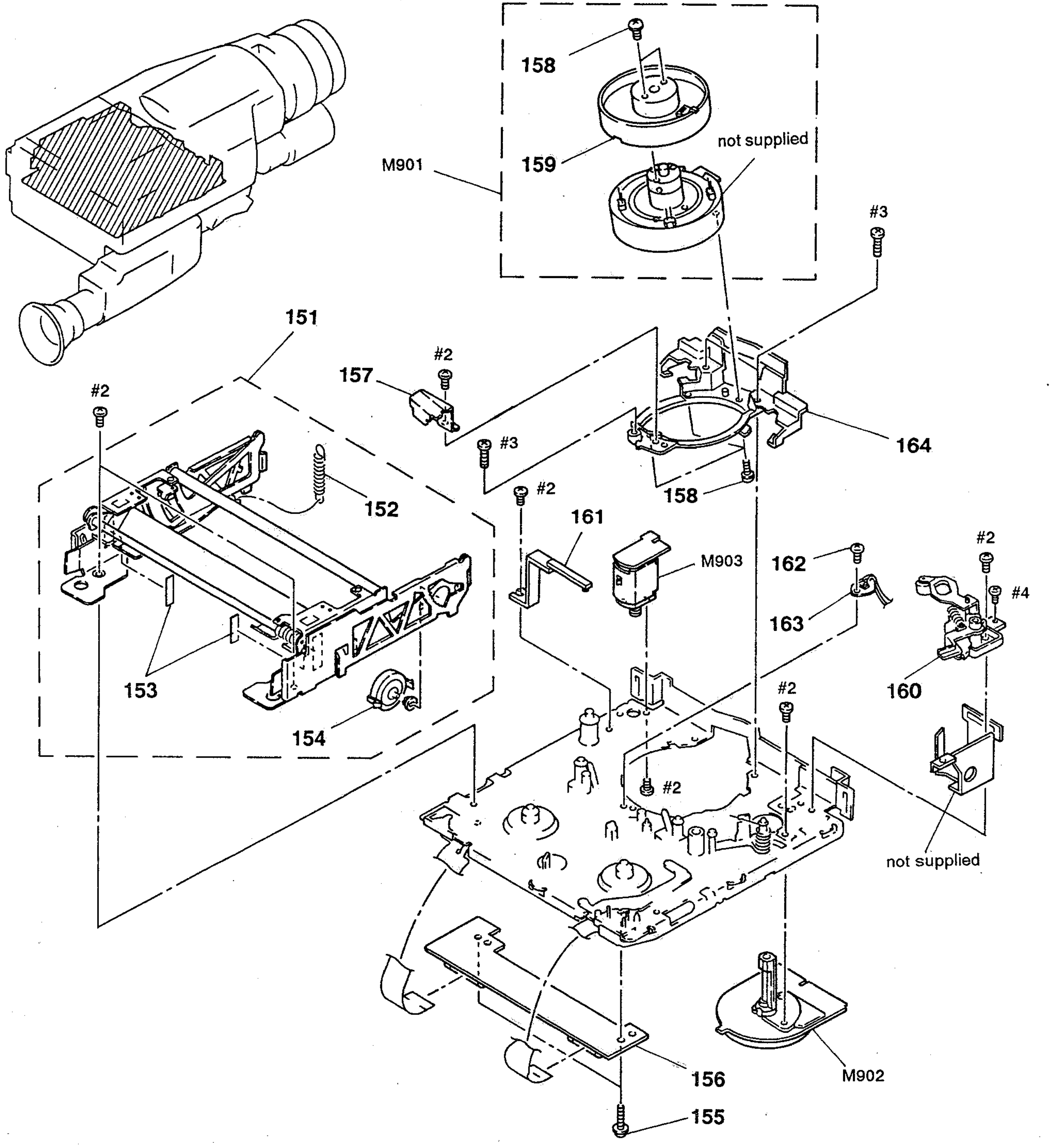

101
114
115
A
119
117
B TYPE (M)
103
V901
104
not supplied
A TYPE (C)
not supplied
L901
102
(include CRT901)
V901
W901
105
(include W901)
118
CRT901
116
108
120
107
106
not supplied
#1
A
112
not supplied
111
110
not supplied
not supplied
109
113

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
101	A-7019-282-A	EVF (M) ASSY (B TYPE)	
	*A-7019-283-A	EVF (C) ASSY (A TYPE)	
102	*A-7062-124-A	VF-26 BOARD, COMPLETE	
103	3-724-570-01	RING, CRT FIXED (B TYPE (M))	
104	3-724-549-01	LOCK, CRT (B TYPE (M))	
105	*A-7062-125-A	VF-27 BOARD, COMPLETE	
106	X-3744-701-1	CASE ASSY, LOWER, VF	
107	3-302-492-00	SPRING, COMPRESSION	
108	3-732-012-11	SCREW (M2X5)	
109	3-719-381-01	SCREW (M2X4)	
110	3-744-712-01	SHOE, VF	
111	X-3940-369-1	FINDER (S) ASSY, SPORTS	
112	3-749-142-01	EYE CUP	
113	3-713-790-31	SCREW (M2X8), TAPPING, P3	
114	3-744-705-01	CASE, VF (UPPER)	
115	1-634-011-11	FP-264 FLEXIBLE BOARD	
116	3-744-716-01	COVER, FL	
117	3-744-722-01	GUIDE, VF TALLY	
118	3-744-775-01	INSULATOR, VF	
119	3-744-720-11	SCREW (M2X3)	
120	*3-728-656-01	LABEL, MEASUREMENT	
CRT901	⚠ 1-526-978-21	SOCKET ASSY, CRT (ON VF-26 BOARD)	(B TYPE (M))
L901	⚠ 1-451-310-21	DEFLECTION YOKE (B/W) (ON VF-26 BOARD)	(B TYPE (M))
V901	⚠ 1-452-482-11	CRT ASSY (M91JYZ60WB) (ON VF-27 BOARD)	(A TYPE (C))
	⚠ 1-546-085-11	CATHODE-RAY TUBE, B/W (ON VF-26 BOARD)	(B TYPE (M))
W901	⚠ 1-540-019-21	SOCKET ASSY, CRT (ON VF-27 BOARD)	(A TYPE (C))

5-4. MECHANICAL DECK ASSEMBLY (1)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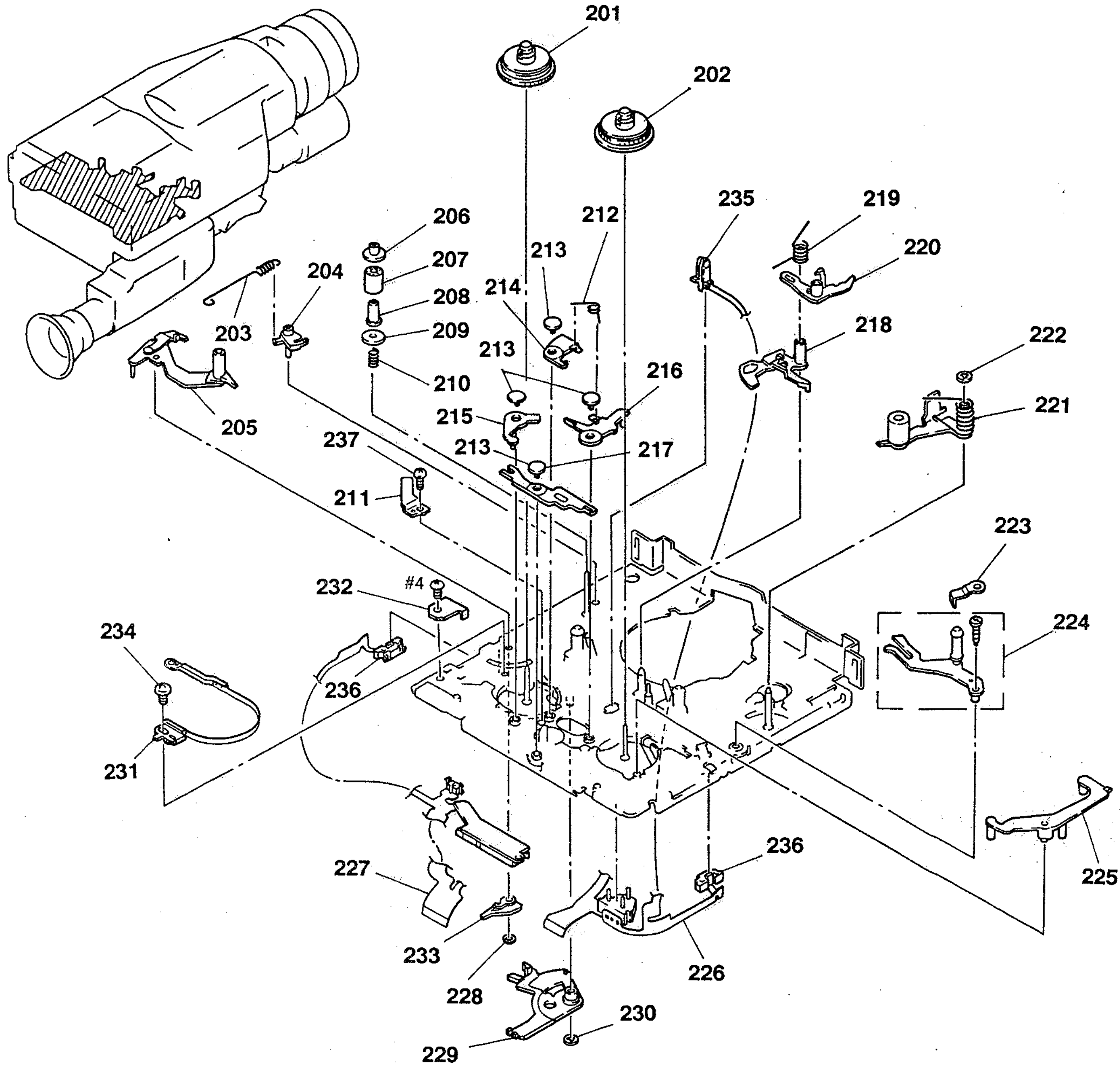
159
M901
not supplied
#3
151
#2
157
#2
#3
164
158
#2
152
161
M903
162
#2
#4
163
153
160
#2
154
#2
not supplied
156
M902
155

Ref. No.	Part No.	Description	Remark
151	X-3728-874-1	CASSETTE COMPARTMENT ASSY (N)	
152	3-728-825-03	SPRING, TENSION	
153	*3-728-829-01	TAPE	
154	3-728-867-02	DAMPER, OIL	
155	3-719-601-01	SCREW (B2X5), TAPPING	
156	*1-638-470-11	CC-61 BOARD	
157	3-728-868-01	GUARD, GUIDE	
158	3-686-493-01	SCREW (M2x5), P1	
159	A-7049-306-A	DRUM ASSY, UPPER, ROTARY (DGR-56-R)	
160	A-7040-205-A	ROLLER BLOCK ASSY (RP), HC	
161	X-3728-864-1	GROUND ASSY, SHAFT	
162	3-732-087-31	SCREW (M1.4X1.8), SPECIAL HEAD	
163	1-808-505-12	SENSOR (DEW SENSOR)	
164	X-3686-482-5	BASE ASSY, DRUM	
M901	A-7048-356-A	DRUM ASSY (DGU-56A-R)	
M902	8-835-331-01	MOTOR, DC U-22A (CAPSTAN)	
M903	A-7040-208-A	MOTOR ASSY, THREADING (LOADING)	

5-5. MECHANICAL DECK ASSEMBLY (2)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237
213
217
211
223
232
#4
224
234
236
231
236
227
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233
226
228
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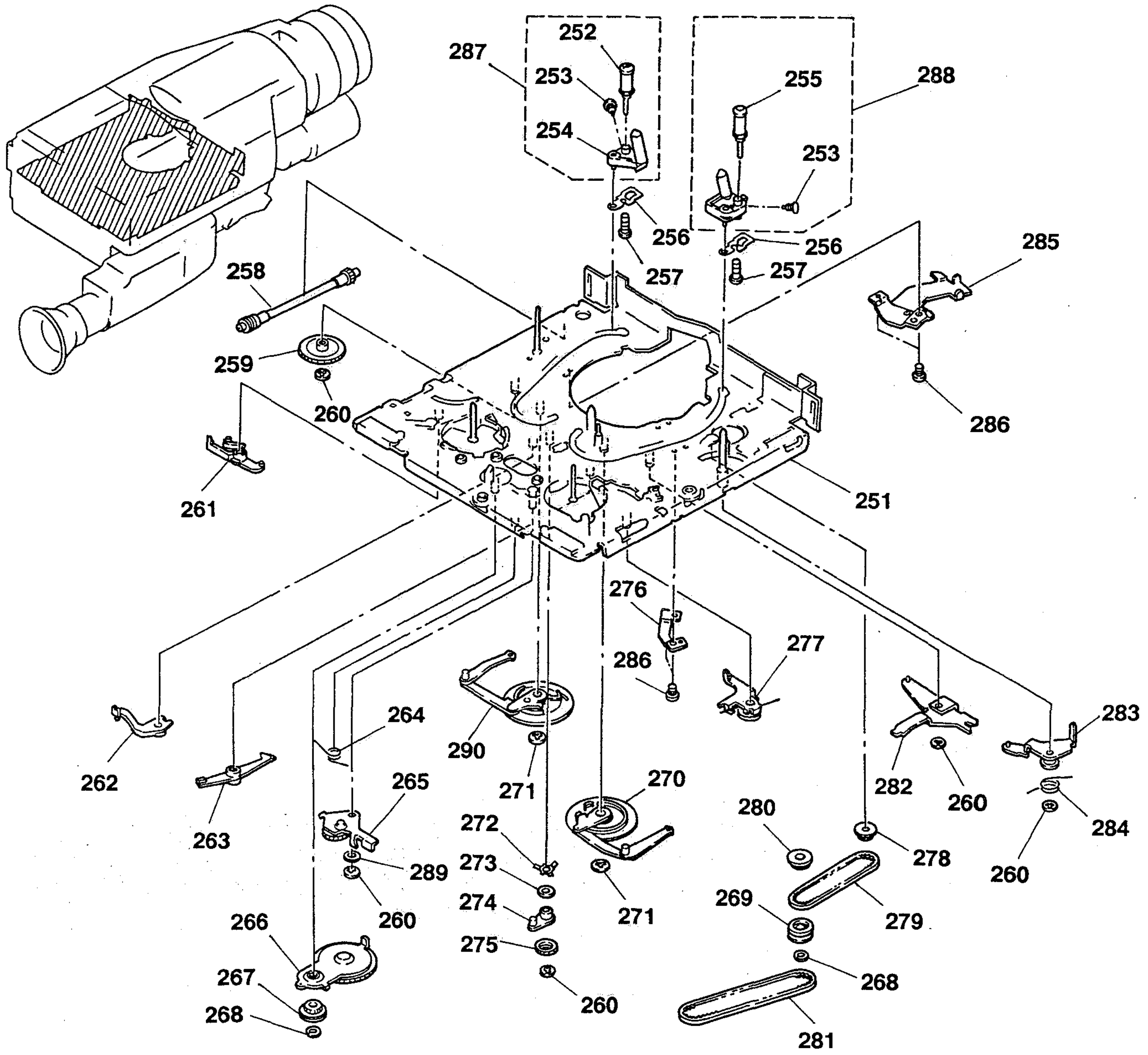
229

Ref. No.	Part No.	Description	Remark
201	X-3728-851-1	TABLE ASSY, REEL, S	
202	X-3728-855-1	TABLE ASSY, REEL, T	
203	3-736-414-01	SPRING, TENSION	
204	3-728-855-03	ARM, ADJUSTMENT	
205	X-3728-867-1	ARM ASSY (S), TENSION REGULATOR	
206	3-726-884-01	FLANGE, UPPER, TG2	
207	3-726-883-01	ROLLER, TG2	
208	3-726-885-01	SLEEVE, TG2	
209	3-726-882-02	FLANGE, LOWER, TG2	
210	3-726-886-01	SPRING, COMPRESSION	
211	3-726-848-01	RETAINER, TL	
212	3-726-866-01	SPRING (ST), TORSION	
213	3-726-858-01	PIN, SHAFT RETAINER	
214	3-728-849-01	BRAKE, S	
215	3-726-852-01	BRAKE, LB	
216	3-728-850-01	BRAKE, T	
217	3-726-853-01	LEVER, LB	
218	3-728-875-01	STOPPER, RK	
219	3-726-864-01	SPRING (RK), TORSION	
220	3-728-852-02	ARM, RK STOPPER	
221	A-7040-219-A	ARM BLOCK ASSY, PINCH	
222	3-669-465-00	WASHER (1.5), STOPPER	
223	3-728-808-01	SPRING, LEAF	
224	X-3728-869-1	ARM ASSY, TG7	
225	3-728-848-01	ARM, LB RELEASE	
226	1-628-061-12	FP-90 FLEXIBLE BOARD	
227	1-628-060-12	FP-89 FLEXIBLE BOARD	
228	3-321-393-11	WASHER, STOPPER	
229	X-3728-863-1	LEVER ASSY, SW	
230	3-726-829-01	WASHER, STOPPER	
231	X-3728-859-1	BAND ASSY, TENSION REGULATOR	
232	3-730-125-01	RETAINER, SW	
233	X-3728-857-1	STOPPER ASSY, TENSION REGULATOR	
234	3-726-822-01	SCREW (M1.4X2) (STEP), HEAD	
235	3-728-837-01	HOLDER, LED	
236	3-728-869-02	HOLDER, SENSOR	
237	3-732-087-31	SCREW (M1.4X1.8), SPECIAL HEAD	

5-6. MECHANICAL DECK ASSEMBLY (3)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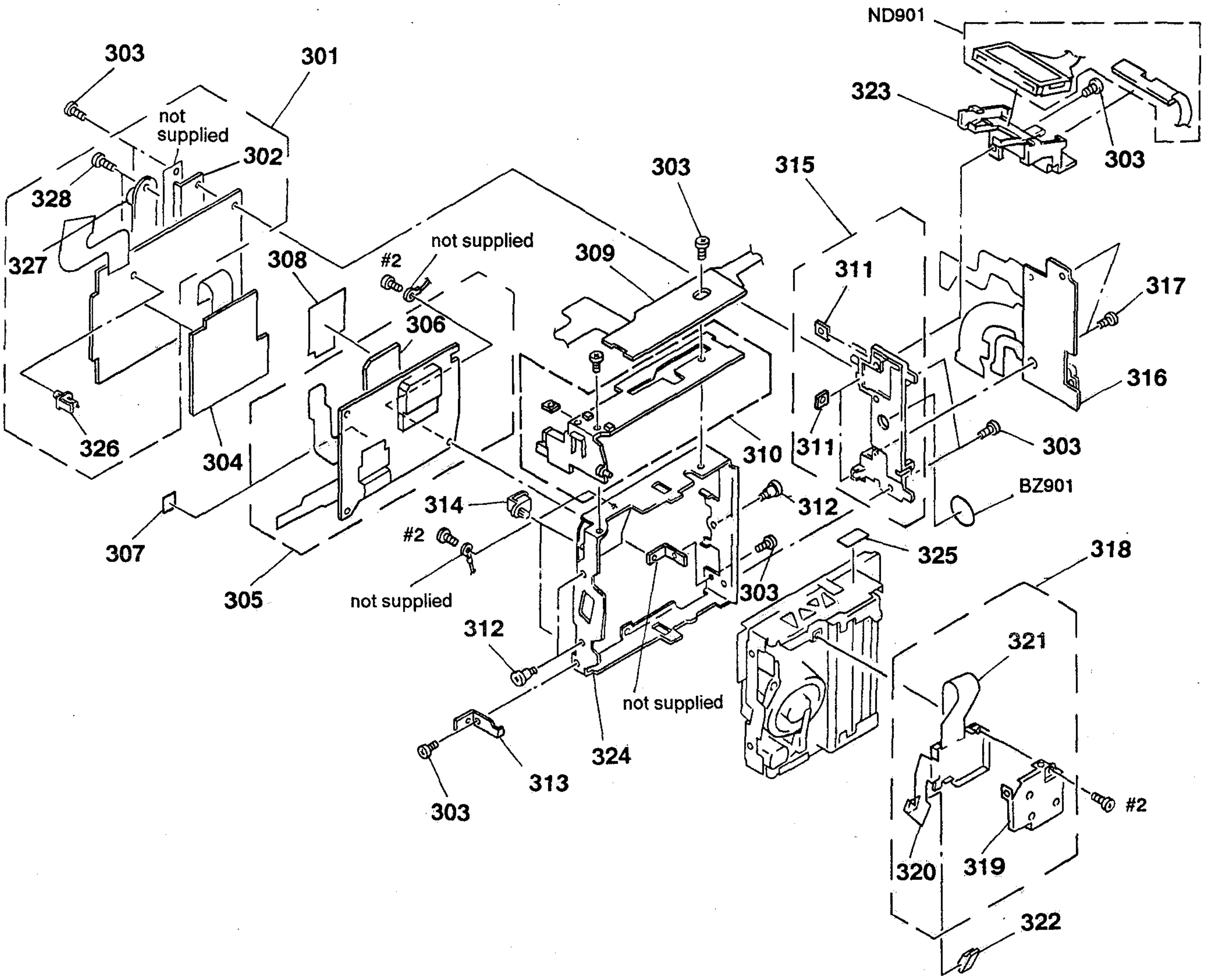
Ref. No.	Part No.	Description	Remark
251	X-3728-862-1	CHASSIS ASSY, MECHANICAL	
252	X-3726-820-1	ROLLER ASSY (U), GUIDE	
253	3-726-822-01	SCREW (M1.4X2) (STEP), HEAD	
254	X-3726-818-1	COASTER (LEFT) ASSY	
255	X-3728-808-4	ROLLER ASSY (U)(PLATING),GUIDE	
256	3-736-485-01	SPRING, LEAF, COSTER	
257	3-726-830-01	SCREW (M1.4X4) (THREE LOCK)	
258	X-3728-868-1	WORM ASSY	
259	3-744-109-01	GEAR, WHEEL	
260	3-726-829-01	WASHER, STOPPER	
261	3-728-842-01	LEVER, EJECT	
262	3-728-851-01	BRAKE, UL	
263	3-726-854-01	ARM, BRAKE RELEASE	
264	3-726-865-01	SPRING (LB), TORSION	
265	A-7040-225-A	GEAR BLOCK ASSY (N), LB	
266	X-3728-866-1	GEAR ASSY, RK	
267	X-3728-858-1	GEAR ASSY, RC	
268	3-321-393-11	WASHER, STOPPER	
269	3-741-196-01	PULLEY (LOWER), BELT MIDWAY	
270	X-3728-843-1	GEAR (RIGHT) ASSY, DRIVE	
271	3-669-465-00	WASHER (1.5), STOPPER	
272	3-726-867-01	SPRING, LEAF	
273	3-701-436-21	WASHER, POLYEHTHYLENE	
274	3-726-857-03	ARM, UL	
275	3-726-856-04	GEAR, UL	
276	*3-726-805-01	REINFORCEMENT (TT)	
277	X-3726-808-2	BRAKE ASSY, TS	
278	X-3726-805-1	GEAR ASSY, JOINT	
279	3-728-866-11	BELT (S), TIMING	
280	X-3726-813-1	PULLEY (UPPER) ASSY, MIDWAY	
281	3-741-197-01	BELT (L), TIMING	
282	X-3728-846-1	LEVER ASSY, LOADING	
283	X-3726-824-1	ARM ASSY, PINCH SUB	
284	3-726-895-01	SPRING	
285	X-3726-841-1	REINFORCEMENT (SS) ASSY	
286	3-732-087-31	SCREW (M1.4X1.8), SPECIAL HEAD	
287	A-7040-128-A	COASTER (LEFT) BLOCK ASSY	
288	A-7040-217-A	COASTER (RIGHT)BLOCK ASSY(N1P)	
289	3-701-436-01	WASHER, 1.6	
290	X-3728-842-1	GEAR (LEFT) ASSY, DRIVE	

5-7. MAIN BOARDS ASSEMBLY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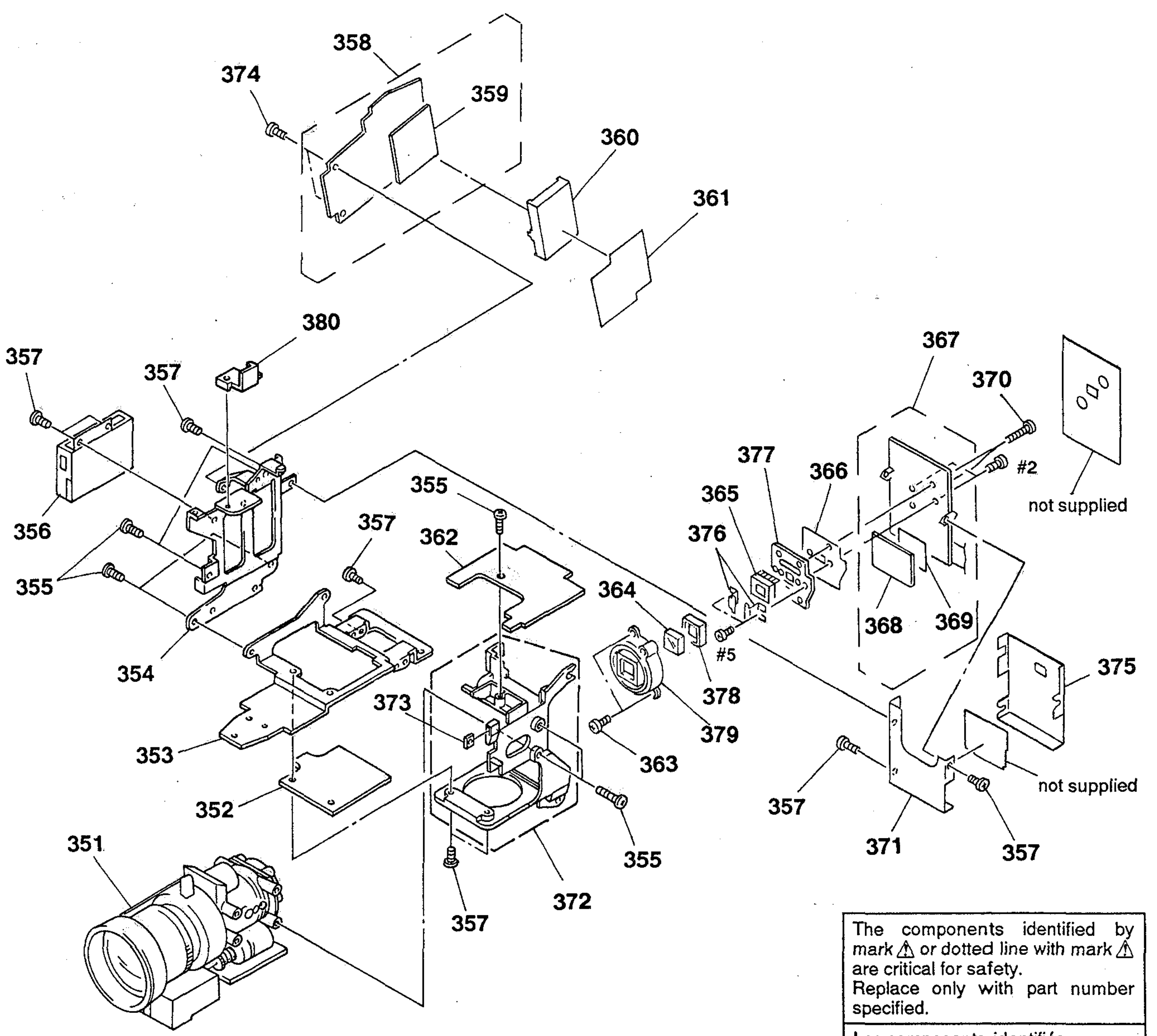
Ref. No.	Part No.	Description	Remark
301	*A-7062-715-A	VA-68 BOARD, COMPLETE	
302	X-3744-801-1	REINFORCEMENT ASSY, VA	
303	3-719-381-01	SCREW (M2X4)	
304	*A-7062-714-A	CT-39 BOARD, COMPLETE	
305	*A-7062-713-A	SS-136 (C) BOARD, COMPLETE	
306	*X-3744-601-1	CASE ASSY (DD-B), SHIELD	
307	3-831-441-11	CLOTH, UNWEAVED (25X6X0.5)	
308	*3-744-890-01	PLATE, PROTECTION, FLEXIBLE	
309	*A-7071-399-A	VK-16 BOARD, COMPLETE	
310	X-3940-499-1	TABLE (UPPER) (V) ASSY	
311	3-718-233-01	NUT, PLATE	
312	3-744-603-21	SCREW	
313	3-942-235-01	HOOK, LOWER	
314	3-744-609-01	HINGE (C), PC BOARD	
315	X-3744-810-1	FRAME (R) ASSY, MD	
316	*A-7062-716-A	FU-101 BOARD, COMPLETE	
317	3-713-790-01	SCREW (M2X5), TAPPING, P3	
318	8-741-101-08	IC SBX1509-01 (RP-77 HIC BOARD)	
319	*3-744-608-01	CASE (RP-77A), SHIELD	
320	1-633-889-11	FP-246 FLEXIBLE BOARD	
321	1-633-891-11	FP-247 FLEXIBLE BOARD	
322	1-569-347-11	CONNECTOR, FPC(TRANSLATION)13P	
323	*3-744-905-01	HOLDER, LCD	
324	X-3744-602-1	FRAME ASSY, MD	
325	*3-730-176-01	SHEET, MD	
326	3-744-842-01	SUPPORT, CT PC BOARD	
327	1-569-556-11	JACK	
328	3-719-695-01	SCREW (M1.7x3.5), SPECIAL HEAD	
BZ901	1-529-096-11	BUZZER, PIEZOELECTRIC	
ND901	1-809-023-11	DISPLAY PANEL, LIQUID CRYSTAL (LCD ASSY)	

5-8. CAMERA BLOCK ASSEMBLY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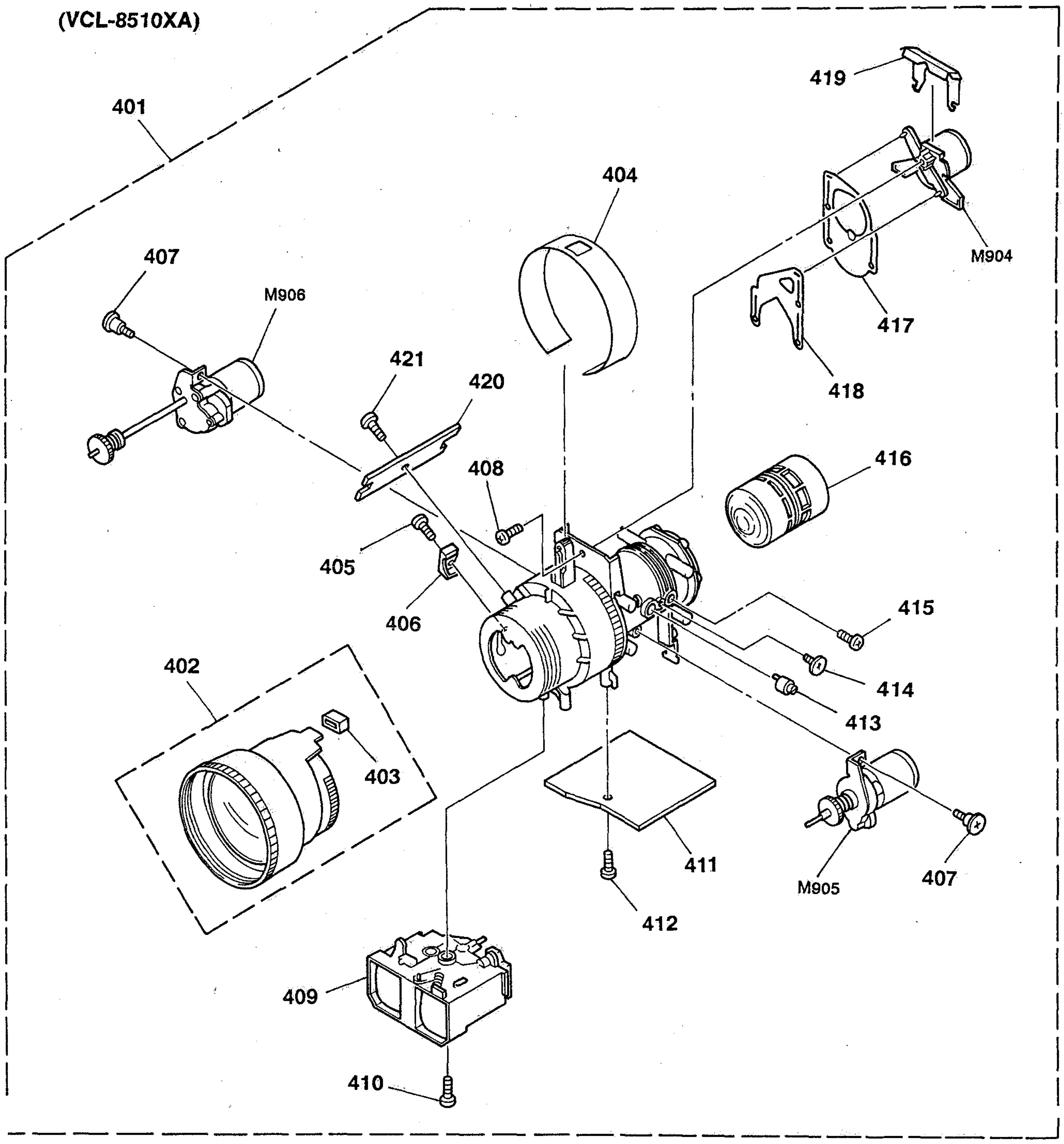
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
351	1-547-481-11	LENS, ZOOM (VCL-8510XA)	
352	*A-7071-403-A	LI-36 BOARD, COMPLETE	
353	3-942-269-01	PLATE, BASE	
354	3-942-268-01	PLATE, ARM	
355	3-713-790-21	SCREW (M2X6), TAPPING, P3	
356	⚠ 1-466-230-21	CONVERTER UNIT, D/D (DC-DC CONVERTER UNIT)	
357	3-719-381-01	SCREW (M2X4)	
358	*A-7062-711-A	VC-95 BOARD, COMPLETE	
359	A-7068-187-A	MX-10B HIC BOARD, COMPLETE	
360	*3-744-763-01	CASE, SHIELD, VC	
361	*3-744-892-01	INSULATOR, VC	
362	*A-7062-720-A	DK-12 BOARD, COMPLETE	
363	3-738-519-11	SCREW (M2X3), +B	
364	1-547-357-12	FILTER BLOCK, OPTICAL (ON CCD IMAGER)	
365	8-752-604-98	IC ICX026CK-2 (CCD IMAGER) (ON CD-59 BOARD)	

Ref. No.	Part No.	Description	Remark
366	*3-725-180-01	SHEET, INSULATING, CCD HOLDER	
367	*A-7062-712-A	CD-59 BOARD, COMPLETE	
368	A-7068-174-A	DT-77H HIC BOARD, COMPLETE	
369	*X-3739-811-1	PLATE ASSY, SHIELD, CD	
370	3-335-640-51	SCREW (M2X16)	
371	*X-3744-702-1	CASE (MAIN) ASSY, SHIELD, C	
372	X-3940-498-1	HOLDER ASSY, CAMERA	
373	3-718-233-01	NUT, PLATE	
374	3-719-408-01	SCREW (B2), TAPPING, P3	
375	*3-744-702-01	LID, C SHIELD CASE	
376	*3-725-175-01	STOPPER, CCD	
377	3-725-176-11	HOLDER, CCD	
378	*3-725-177-01	RUBBER, SEAL	
379	3-725-174-11	ADAPTER, CCD FITTING	
380	3-942-555-01	CAMERA PLUS	

5-9. ZOOM LENS ASSEMBLY
(VCL-8510XA)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Ref. No.	Part No.	Description	Remark
401	1-547-481-11	LENS, ZOOM (VCL-8510XA)	
402	3-708-254-01	LENS ASSY, FOCUS	
403	3-708-243-01	RUBBER, (F) STOPPER	
404	3-708-246-01	SHEET, ZOOM	
405	3-707-445-01	SCREW, (N) STOPPER CLAMP	
406	3-707-446-01	STOPPER, (N)	
407	3-707-447-01	SCREW, MOTOR CLAMP	
408	3-707-444-01	SCREW, IG METER CLAMP	
409	3-708-248-01	BLOCK ASSY, AF	
410	3-708-249-01	SCREW, AF BLOCK	
411	3-708-250-01	PC BOARD ASSY, AF	
412	3-707-450-01	SCREW, AF BLOCK CLAMP	

Ref. No.	Part No.	Description	Remark
413	3-707-453-01	ROLLER, ECCENTRIC	
414	3-707-454-01	SCREW	
415	3-707-455-01	SCREW, RELAY SET	
416	3-708-252-01	MIRROR TUBE UNIT, RELAY	
417	3-707-631-01	WING (A) ASSY, ZOOM	
418	3-707-632-01	WING, ZOOM (B)	
419	3-708-253-01	COVER, IG METER	
420	3-708-244-01	PC BOARD ASSY, SW	
421	3-707-761-01	SCREW, SW PC BOARD	
M904	3-708-245-01	METER, IG (IRIS)	
M905	3-708-251-01	MOTOR ASSY, PZ (ZOOM)	
M906	3-708-247-01	MOTOR ASSY, AF (FOCUS)	

CC-61 CD-59 DT-77H

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA..., uPA...: μPA...,
  uPB...: μPB..., uPC...: μPC...,
  uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH

Ref. No.	Part No.	Description	Remark
	* 1-638-470-11	CC-61 BOARD (Ref. No. 10000 Series)	
		***********	
		(CONNECTOR)	
CN511	1-569-363-21	CONNECTOR, FPC 15P	
CN512	1-566-529-11	CONNECTOR, FPC (ZIF) 13P	
CN513	1-566-527-11	CONNECTOR, FPC (ZIF) 11P	
**			
	* A-7062-712-A	CD-59 BOARD COMPLETE	
		********************	
		(Ref. No. 6000 Series)	
	A-7068-174-A	DT-77H HIC BOARD COMPLETE	
		*************************	
		(CAPACITOR)	
C101	1-126-200-11	ELECT CHIP 10uF 20% 35V	
C102	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C104	1-128-008-11	ELECT CHIP 3.3uF 20% 35V	
C105	1-126-607-11	ELECT CHIP 47uF 20% 4V	
C107	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C110	1-126-206-11	ELECT CHIP 100uF 20% 6.3V	
C111	1-162-915-11	CERAMIC CHIP 10PF 0.5PF 50V	
C112	1-164-005-11	CERAMIC CHIP 0.47uF 25V	
C113	1-128-013-11	ELECT CHIP 1uF 20% 50V	
C114	1-128-008-11	ELECT CHIP 3.3uF 20% 35V	
C115	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C121	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C122	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C123	1-135-091-00	TANTALUM CHIP 1uF 20% 16V	
C124	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C125	1-126-205-11	ELECT CHIP 47uF 20% 6.3V	
C126	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C127	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C128	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C129	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	
C130	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C131	1-162-638-11	CERAMIC CHIP 1uF 16V	
C133	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C135	1-162-638-11	CERAMIC CHIP 1uF 16V	
C141	1-162-942-11	CERAMIC CHIP 12PF 5% 50V	
C142	1-135-145-11	TANTALUM CHIP 0.47uF 10% 25V	
C144	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C147	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C187	1-162-966-11	CERAMIC CHIP 0.0022uF 10% 50V	
C188	1-162-966-11	CERAMIC CHIP 0.0022uF 10% 50V	
C189	1-162-966-11	CERAMIC CHIP 0.0022uF 10% 50V	
C190	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C191	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C192	1-126-100-11	ELECT 10uF 20% 6.3V	
		(CONNECTOR)	
CN101	* 1-565-876-11	PIN, CONNECTOR (PC BOARD) 4P	
		(TRIMMER)	
CT122	1-141-356-11	CAP, ADJ	
		(DIODE)	
D101	8-719-404-46	DIODE MA110	
D102	8-719-404-52	DIODE MA143	
D122	8-719-404-32	DIODE MA141WA	
D123	8-719-404-46	DIODE MA110	
D124	8-719-404-32	DIODE MA141WA	
D126	8-719-404-46	DIODE MA110	
D128	8-719-404-46	DIODE MA110	
		(IC)	
IC121	8-752-326-08	IC CXD1159Q	
		(COIL)	
L101	1-412-063-21	INDUCTOR CHIP 68uH	
L121	1-412-058-11	INDUCTOR CHIP 10uH	
L122	1-412-058-11	INDUCTOR CHIP 10uH	
L123	1-410-381-11	INDUCTOR CHIP 10uH	
L182	1-412-058-11	INDUCTOR CHIP 10uH	
L183	1-412-052-21	INDUCTOR CHIP 1uH	
L184	1-412-058-11	INDUCTOR CHIP 10uH	

Ref. No.	Part No.	Description	Remark
		〈 TRANSISTOR 〉	
Q102	8-729-905-35	TRANSISTOR 2SC4081	
Q121	8-729-907-47	TRANSISTOR IMZ1T108	
Q122	8-729-402-78	TRANSISTOR XN6401	
Q123	8-729-402-19	TRANSISTOR XN6501	
Q125	8-729-905-35	TRANSISTOR 2SC4081	
Q126	8-729-907-47	TRANSISTOR IMZ1T108	
Q129	8-729-905-23	TRANSISTOR 2SA1576	
Q131	8-729-907-47	TRANSISTOR IMZ1T108	
Q132	8-729-907-47	TRANSISTOR IMZ1T108	
Q133	8-729-907-47	TRANSISTOR IMZ1T108	
Q135	8-729-907-47	TRANSISTOR IMZ1T108	
Q136	8-729-402-45	TRANSISTOR UN5212	
		〈 RESISTOR 〉	
R101	1-216-848-11	METAL CHIP 180K 5% 1/16W	
R102	1-216-844-11	METAL CHIP 82K 5% 1/16W	
R103	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R104	1-216-809-11	METAL CHIP 100 5% 1/16W	
R105	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R108	1-216-864-11	METAL CHIP 0	
R110	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R111	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R112	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R113	1-216-864-11	METAL CHIP 0	
R114	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R115	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R116	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R117	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R118	1-216-813-11	METAL CHIP 220 5% 1/16W	
R119	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R122	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R124	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R125	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R126	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R127	1-216-820-11	METAL CHIP 820 5% 1/16W	
R128	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R129	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R130	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R131	1-216-844-11	METAL CHIP 82K 5% 1/16W	
R132	1-216-844-11	METAL CHIP 82K 5% 1/16W	
R133	1-216-850-11	METAL CHIP 270K 5% 1/16W	
R136	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R138	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R139	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R140	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R141	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R142	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R143	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R148	1-216-848-11	METAL CHIP 180K 5% 1/16W	
R149	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R153	1-216-864-11	METAL CHIP 0	
R156	1-216-864-11	METAL CHIP 0	
R165	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R166	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R167	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R168	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R170	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R171	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R173	1-216-813-11	METAL CHIP 220 5% 1/16W	
R181	1-216-821-11	METAL CHIP 1K 5% 1/16W	
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R184	1-216-835-11	METAL CHIP 15K 5% 1/16W	
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R196	1-216-813-11	METAL CHIP 220 5% 1/16W	
R197	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R198	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R199	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R200	1-216-844-11	METAL CHIP 82K 5% 1/16W	
R201	1-216-671-11	METAL CHIP 6.8K 0.5% 1/10W	
R202	1-216-643-11	METAL CHIP 470 0.5% 1/10W	
R203	1-216-681-11	METAL CHIP 18K 0.5% 1/10W	
R204	1-216-671-11	METAL CHIP 6.8K 0.5% 1/10W	

Ref. No.	Part No.	Description	Remark
R205	1-216-659-11	METAL CHIP 2.2K 0.5% 1/10W	
R206	1-216-681-11	METAL CHIP 18K 0.5% 1/10W	
R207	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R208	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R209	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R210	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R215	1-216-842-11	METAL CHIP 56K 5% 1/16W	
R216	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R217	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R220	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R221	1-216-840-11	METAL CHIP 39K 5% 1/16W	
R222	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R226	1-216-864-11	METAL CHIP 0	
R229	1-216-864-11	METAL CHIP 0	
R230	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R231	1-216-813-11	METAL CHIP 220 5% 1/16W	
R232	1-216-813-11	METAL CHIP 220 5% 1/16W	
R233	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R234	1-216-841-11	METAL CHIP 47K 5% 1/16W	

(CRYSTAL)

Ref. No.	Part No.	Description	Remark
X121	1-579-042-11	VIBRATOR, CRYSTAL (28,636MHz)	

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* A-7071-400-A CK-46/ZK-12 MOUNT
****
(Ref. No. 5000 Series)

* 3-942-267-01 HOLDER (CK), LCD

(CAPACITOR)

Ref. No.	Part No.	Description	Remark
C691	1-135-149-21	TANTALUM CHIP 2.2uF 20% 10V	

(DIODE)

Ref. No.	Part No.	Description	Remark
D671	8-719-404-46	DIODE MA110	
D672	8-719-404-46	DIODE MA110	

(IC)

Ref. No.	Part No.	Description	Remark
IC670	8-759-634-72	IC M34206M2-109FP	

(DISPLAY PANEL)

Ref. No.	Part No.	Description	Remark
ND670	1-809-022-11	DISPLAY PANEL, LIQUID CRYSTAL	

(RESISTOR)

Ref. No.	Part No.	Description	Remark
R690	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R691	1-216-295-00	METAL CHIP 0 5% 1/10W	
R692	1-216-097-00	METAL CHIP 100K 5% 1/10W	

(SWITCH)

Ref. No.	Part No.	Description	Remark
S670	1-570-870-11	SWITCH, SLIDE (AUTO LOCK)	
S671	1-571-787-11	SWITCH, TACTILE (SHUTTER SPEED)	
S672	1-571-787-11	SWITCH, TACTILE (PROGRAM AE)	
S673	1-571-787-11	SWITCH, TACTILE (FOCUS)	
S674	1-571-684-11	SWITCH, TACTIL (PUSH AUTO)	
S675	1-571-684-11	SWITCH, TACTIL (BACK LIGHT)	
S676	1-571-787-11	SWITCH, TACTILE (WHT BAL)	
S681	1-571-684-11	SWITCH, TACTIL (FADER) (ON ZK-12 BOARD)	

(FLEXIBLE BOARD)

Ref. No.	Part No.	Description	Remark
W670	1-639-046-11	FP-414 FLEXIBLE BOARD	
W671	1-639-047-11	FP-415 FLEXIBLE BOARD	

(CRYSTAL)

Ref. No.	Part No.	Description	Remark
X670	1-567-152-00	VIBRATOR, CERAMIC 400MHz	

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* A-7062-714-A CT-39 BOARD, COMPLETE
****
(Ref. No. 1000 Series)

(CAPACITOR)

Ref. No.	Part No.	Description	Remark
C700	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C702	1-128-020-11	ELECT CHIP 10uF 0 6.3V	
C704	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C705	1-162-918-11	CERAMIC CHIP 18PF 5% 50V	
C706	1-162-638-11	CERAMIC CHIP 1uF 16V	
C708	1-162-915-11	CERAMIC CHIP 10PF 0.5PF 50V	
C710	1-128-020-11	ELECT CHIP 10uF 0 6.3V	
C711	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C717	1-128-015-11	ELECT CHIP 22uF 0 4V	
C718	1-128-015-11	ELECT CHIP 22uF 0 4V	

Ref. No.	Part No.	Description	Remark
C720	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C723	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C724	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C726	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C727	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C728	1-128-020-11	ELECT CHIP 10uF 0 6.3V	
C729	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C730	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C734	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	
C735	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C736	1-162-638-11	CERAMIC CHIP 1uF 16V	
C737	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C738	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C739	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C740	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C741	1-162-918-11	CERAMIC CHIP 18PF 5% 50V	
C742	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C743	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C744	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C745	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C746	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C747	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C748	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C749	1-135-145-11	TANTALUM CHIP 0.47uF 10% 25V	
C751	1-135-179-21	TANTAL. CHIP 2.2uF 20% 16V	
C752	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C753	1-162-915-11	CERAMIC CHIP 10PF 0.5PF 50V	
C754	1-162-958-11	CERAMIC CHIP 270PF 5% 50V	
C755	1-162-958-11	CERAMIC CHIP 270PF 5% 50V	
C756	1-162-638-11	CERAMIC CHIP 1uF 16V	
C757	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C758	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C759	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C760	1-162-917-11	CERAMIC CHIP 15PF 5% 50V	
C761	1-162-919-11	CERAMIC CHIP 22PF 5% 50V	
C763	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C769	1-128-049-11	ELECT CHIP 1uF 0 50V	
C773	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	
C774	1-162-965-11	CERAMIC CHIP 0.0015uF 10% 50V	
C799	1-135-178-11	TANTAL. CHIP 1.5uF 20% 20V	
C901	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C902	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	

Ref. No.	Part No.	Description	Remark
C903	1-162-947-11	CERAMIC CHIP 33PF 5% 50V	
C904	1-162-962-11	CERAMIC CHIP 470PF 10% 50V	
C905	1-162-997-11	CERAMIC CHIP 10PF 0.5PF 50V	
C906	1-163-123-00	CERAMIC CHIP 180PF 5% 50V	
C907	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C908	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C909	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C910	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C911	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C930	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C931	1-162-638-11	CERAMIC CHIP 1uF 16V	

〈 CONNECTOR 〉

CN705	1-568-336-11	CONNECTOR, BOARD TO BOARD 20P	

〈 TRIMMER 〉

CT701	1-141-424-11	CAP, ADJ 30pF	
CT702	1-141-424-11	CAP, ADJ 30pF	
CT901	1-141-424-11	CAP, ADJ 30pF	
CT902	1-141-417-11	CAP, ADJ 30pF	

〈 DIODE 〉

D901	8-719-949-46	DIODE 1T32	
D903	8-719-404-46	DIODE MA110	
D904	8-719-404-46	DIODE MA110	
D905	8-719-404-46	DIODE MA110	
D906	8-719-404-46	DIODE MA110	

〈 IC 〉

IC701	8-759-998-30	IC CF79028PG	
IC702	8-759-979-96	IC 8464A-15LLPF	
IC703	8-752-039-49	IC CXA1393AN	
IC704	8-759-634-47	IC M51285BGP	
IC707	8-759-710-29	IC NJM2235M	
IC708	8-759-710-09	IC NJM2233AM	
IC709	8-759-710-09	IC NJM2233AM	
IC713	8-759-234-20	IC TC7S08F	
IC901	8-759-970-80	IC MB673198U	
IC902	8-759-153-41	IC uPD6451AGT-611-E1	

〈 COIL 〉

L700	1-412-028-11	INDUCTOR, CHIP 4.7uH	

CT-39

Ref. No.	Part No.	Description	Remark
L701	1-410-384-31	INDUCTOR, CHIP 18uH	
L702	1-412-028-11	INDUCTOR, CHIP 4.7uH	
L703	1-412-028-11	INDUCTOR, CHIP 4.7uH	
L704	1-412-032-11	INDUCTOR, CHIP 100uH	
L902	1-412-143-31	INDUCTOR 39uH	
L903	1-412-282-41	INDUCTOR 470uH	
		⟨ TRANSISTOR ⟩	
Q701	8-729-925-91	TRANSISTOR DTC115EU	
Q702	8-729-907-03	TRANSISTOR FMG5	
Q703	8-729-905-18	TRANSISTOR DTC144EU	
Q704	8-729-905-35	TRANSISTOR 2SC4081R	
Q705	8-729-905-24	TRANSISTOR 2SA1576T106S	
Q706	8-729-905-18	TRANSISTOR DTC144EU	
Q707	8-729-905-35	TRANSISTOR 2SC4081R	
Q708	8-729-905-15	TRANSISTOR DTC144WU	
Q709	8-729-905-35	TRANSISTOR 2SC4081R	
Q710	8-729-905-35	TRANSISTOR 2SC4081R	
Q720	8-729-905-18	TRANSISTOR DTC144EU	
Q726	8-729-905-23	TRANSISTOR 2SA1576R	
Q727	8-729-905-35	TRANSISTOR 2SC4081R	
Q728	8-729-905-35	TRANSISTOR 2SC4081R	
Q729	8-729-905-18	TRANSISTOR DTC144EU	
Q730	8-729-905-12	TRANSISTOR DTA144EU	
Q800	8-729-905-18	TRANSISTOR DTC144EU	
Q801	8-729-905-23	TRANSISTOR 2SA1576R	
		⟨ RESISTOR ⟩	
R700	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R702	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R704	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R706	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R708	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R711	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R713	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R715	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R716	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R720	1-216-864-11	METAL CHIP 0	
R722	1-216-817-11	METAL CHIP 470 5% 1/16W	
R723	1-216-295-00	METAL CHIP 0 5% 1/10W	
R724	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R725	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R729	1-216-864-11	METAL CHIP 0	
R731	1-216-847-11	METAL CHIP 150K 5% 1/16W	
R732	1-216-847-11	METAL CHIP 150K 5% 1/16W	
R734	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R735	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R736	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R737	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R739	1-216-295-00	METAL CHIP 0 5% 1/10W	
R740	1-216-295-00	METAL CHIP 0 5% 1/10W	
R741	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R742	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R745	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R747	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R748	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R749	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R750	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R751	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R753	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R754	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R756	1-216-864-11	METAL CHIP 0	
R758	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R759	1-216-806-11	METAL GLAZE 56 5% 1/16W	
R760	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R761	1-216-814-11	METAL CHIP 270 5% 1/16W	
R762	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R763	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R764	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R766	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R770	1-216-864-11	METAL CHIP 0	
R772	1-216-864-11	METAL CHIP 0	
R776	1-216-818-11	METAL CHIP 560 5% 1/16W	
R777	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R780	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R781	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R782	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
R783	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R784	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R787	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R788	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R789	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R793	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	

Ref. No.	Part No.	Description				Remark
R795	1-216-864-11	METAL CHIP	0			
R796	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R797	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R798	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R901	1-216-864-11	METAL CHIP	0			
R902	1-216-864-11	METAL CHIP	0			
R903	1-216-864-11	METAL CHIP	0			
R904	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R905	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R906	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R907	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R908	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R909	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R910	1-216-864-11	METAL CHIP	0			
R911	1-216-838-11	METAL CHIP	27K	5%	1/16W	
R913	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R914	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R915	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	
R916	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R917	1-216-842-11	METAL CHIP	56K	5%	1/16W	
R918	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R919	1-216-864-11	METAL CHIP	0			
R920	1-216-828-11	METAL CHIP	3.9K	5%	1/16W	
R921	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R923	1-216-824-11	METAL CHIP	1.8K	5%	1/16W	
R924	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R925	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R926	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R927	1-216-864-11	METAL CHIP	0			
R930	1-216-864-11	METAL CHIP	0			
R932	1-216-864-11	METAL CHIP	0			
R933	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R934	1-216-840-11	METAL CHIP	39K	5%	1/16W	
R959	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R960	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R961	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R962	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R963	1-216-815-11	METAL CHIP	330	5%	1/16W	
R964	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R965	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R967	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R968	1-216-814-11	METAL CHIP	270	5%	1/16W	

Ref. No.	Part No.	Description				Remark
R969	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R970	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	
R976	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R977	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R978	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R979	1-216-864-11	METAL CHIP	0			
R982	1-216-809-11	METAL CHIP	100	5%	1/16W	
R983	1-216-809-11	METAL CHIP	100	5%	1/16W	
R984	1-216-809-11	METAL CHIP	100	5%	1/16W	

(VARIABLE RESISTOR)

RV702	1-238-089-11	RES, ADJ CERMET4.7K
RV703	1-238-092-11	RES, ADJ CERMET47K

(THERMISTOR)

TH700	1-800-071-XX	THERMISTER, S-300

(FLEXIBLE BOARD)

W704	1-633-979-11	FP-299 FLEXIBLE BOARD

(CRYSTAL)

X701	1-567-900-11	CRYSTAL (14.3MHz)
X703	1-578-690-11	VIBRATOR, CERAMIC (500kHz)

****

* A-7062-720-A DK-12 BOARD, COMPLETE
****
(Ref. No. 5000 Series)

* 3-942-236-01 HOLDER, TALLY

(CAPACITOR)

C950	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C951	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C952	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C960	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V (F501 ONLY)

(CONNECTOR)

CN950	1-566-532-11	CONNECTOR, FPC (ZIF) 16P

DK-12 FP-89 FP-90 FP-249

Ref. No.	Part No.	Description	Remark
		(DIODE)	
D920	8-719-812-41	LED TLR124, RED (TALLY)	
		(IC)	
IC950	8-759-145-63	IC uPD7564G-540-E1	
		(COIL)	
L950	1-410-389-21	INDUCTOR CHIP 47uH	
L951	1-410-389-21	INDUCTOR CHIP 47uH	
		(TRANSISTOR)	
Q950	8-729-901-01	TRANSISTOR DTC144EK	
		(RESISTOR)	
R950	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R951	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R952	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R953	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R954	1-216-029-00	METAL CHIP 150 5% 1/10W	
R955	1-216-025-00	METAL CHIP 100 5% 1/10W	
R961	1-216-049-00	METAL CHIP 1K 5% 1/10W	
		(SWITCH)	
S920	1-571-787-11	SWITCH, TACTILE (EDIT (-))	
S921	1-571-787-11	SWITCH, TACTILE (EDIT (+))	
S950	1-571-787-11	SWITCH, TACTILE (TITLE 1)	
S951	1-571-787-11	SWITCH, TACTILE (TITLE 2)	
S952	1-571-787-11	SWITCH, TACTILE (COLOR MODE)	
S953	1-571-787-11	SWITCH, TACTILE (MEMORY)	
		(CRYSTAL)	
X950	1-577-163-21	VIBLATOR, CERAMIC 700kHz	

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* 1-628-060-12 FP-89 FLEXIBLE BOARD
****

(Ref. No. 11000 Series)

Ref. No.	Part No.	Description	Remark
	3-728-869-02	HOLDER, SENSOR	

Ref. No.	Part No.	Description	Remark
		(DIODE)	
D301	8-719-820-44	PHOTO COUPLER TLP907	
		(TRANSISTOR)	
Q301	8-729-906-48	TRANSISTOR EE-TP109	
		(SWITCH)	
S301	1-572-173-11	SWITCH, SLIDE (ENCODER) (MODE)	
S903	1-571-099-11	SWITCH (CASSETTE DOWN)	

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* 1-628-061-12 FP-90 FLEXIBLE BOARD
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(Ref. No. 12000 Series)

Ref. No.	Part No.	Description	Remark
	3-728-837-01	HOLDER, LED	
	3-728-869-02	HOLDER, SENSOR	
		(DIODE)	
D302	8-719-940-81	DIODE GL452S	
D303	8-719-820-44	PHOTO COUPLER TLP-907	
		(TRANSISTOR)	
Q302	8-729-906-48	TRANSISTOR EE-TP109	
		(SWITCH)	
S302	1-572-298-11	SWITCH, PUSH (REC PROOF, TAPE SELECT)	

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* 1-633-922-11 FP-249 FLEXIBLE BOARD
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Ref. No.	Part No.	Description	Remark
	1-569-286-11	CONNECTOR, CARD EDGE 5P	

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Ref. No.	Part No.	Description	Remark
	* A-7062-716-A	FU-101 BOARD, COMPLETE	
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		(Ref. No. 10000 Series)	
		(JACK)	
J901	1-537-281-21	TERMINAL BOARD (BATTERY/EASY CONNECTOR)	
		(CAPACITOR)	
C503	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C504	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	
C505	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C506	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C507	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C514	1-162-917-11	CERAMIC CHIP 15PF 5% 50V	
C515	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C516	1-135-149-21	TANTALUM CHIP 2.2uF 20% 10V	
C517	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C518	1-135-155-21	TANTALUM CHIP 4.7uF 10% 10V	
C519	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C994	1-162-966-11	CERAMIC CHIP 0.0022uF 10% 50V	
C995	1-128-292-11	ELECT 220uF 20% 10V	
C996	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
		(CONNECTOR)	
CN502	1-569-480-11	CONNECTOR, FPC 23P	
CN504	1-569-479-21	CONNECTOR, FPC 21P	
CN992	1-565-528-11	PIN, CONNECTOR (PC BOARD) 3P	
		(TRIMMER)	
CT501	1-141-331-11	CAP, CHIP TRIMMER 30pF	
		(DIODE)	
D501	8-719-421-27	DIODE MA728	
D503	8-719-404-46	DIODE MA110	
D504	8-719-404-46	DIODE MA110	
D505	8-719-404-46	DIODE MA110	
D506	8-719-404-46	DIODE MA110	
D507	8-719-404-46	DIODE MA110	
D510	8-719-812-41	LED TLR124, RED	
D511	8-719-404-46	DIODE MA110	

Ref. No.	Part No.	Description	Remark
		(FUSE)	
F990	⚠ 1-532-778-21	FUSE, MICRO (125V 1.6A)	
F991	⚠ 1-532-777-21	FUSE, MICRO (SECONDARY) (125V 1.25A)	
F992	⚠ 1-532-777-21	FUSE, MICRO (SECONDARY) (125V 1.25A)	
		(IC)	
IC501	8-759-154-18	IC uPD75316GF-116-3B9	
IC502	8-759-511-22	IC CXA1448N	
IC503	8-759-937-54	IC S-81250HG-RD-S	
		(COIL)	
L501	1-412-032-11	INDUCTOR CHIP 100uH	
L990	1-412-026-11	INDUCTOR CHIP 1uH	
L991	1-410-337-11	INDUCTOR CHIP 1uH	
L992	1-410-337-11	INDUCTOR CHIP 1uH	
L996	1-412-026-11	INDUCTOR CHIP 1uH	
L997	1-412-026-11	INDUCTOR CHIP 1uH	
		(TRANSISTOR)	
Q509	8-729-904-20	TRANSISTOR FMA2	
Q579	8-729-905-12	TRANSISTOR DTA144EU	
Q990	8-729-101-07	TRANSISTOR 2SB798-DLDK	
Q991	8-729-905-35	TRANSISTOR 2SC4081	
		(RESISTOR)	
R501	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R504	1-216-864-11	METAL CHIP 0	
R505	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R511	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R512	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R513	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R514	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R515	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R516	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R517	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R518	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R520	1-216-864-11	METAL CHIP 0	
R521	1-216-809-11	METAL CHIP 100 5% 1/16W	
R522	1-216-809-11	METAL CHIP 100 5% 1/16W	
R523	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R524	1-216-841-11	METAL CHIP 47K 5% 1/16W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplácer que par une piéce portant le numéro spécifié.

FU-101 LI-36 MC-77

Ref. No.	Part No.	Description				Remark
R525	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R527	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R528	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R529	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R530	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R531	1-216-809-11	METAL CHIP	100	5%	1/16W	
R532	1-216-809-11	METAL CHIP	100	5%	1/16W	
R533	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R534	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R535	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R536	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R537	1-216-817-11	METAL CHIP	470	5%	1/16W	
R538	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R539	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R540	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R541	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R542	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R543	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R544	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R545	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R546	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R547	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R548	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R549	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R550	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R551	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R552	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R553	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R557	1-216-861-11	METAL CHIP	2.2M	5%	1/16W	
R558	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R559	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R563	1-216-864-11	METAL CHIP	0			
R564	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R571	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R572	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R573	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R575	1-216-864-11	METAL CHIP	0			
R578	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R579	1-216-864-11	METAL CHIP	0			
R590	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R990	1-216-138-00	METAL CHIP	3.3	5%	1/8W	
R991	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	
R992	1-216-820-11	METAL CHIP	820	5%	1/16W	
R993	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R994	1-216-807-11	METAL CHIP	68	5%	1/16W	

〈 SWITCH 〉

S501	1-571-275-31	SWITCH, SLIDE (REMOCON)
S502	1-572-284-11	SWITCH, SLIDE (EJECT ▲)

〈 FLEXIBLE BOARD 〉

W501	1-633-978-11	FP-295 FLEXIBLE BOARD
W502	1-633-977-11	FP-293 FLEXIBLE BOARD
W901	1-633-982-11	FP-294 FLEXIBLE BOARD

〈 CRYSTAL 〉

X501	1-577-101-11	VIBRATOR, CERAMIC
X502	1-527-997-22	VIBRATOR, CERAMIC

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* A-7071-403-A LI-36 BOARD, COMPLETE
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(Ref. No. 6000 Series)

〈 CONNECTOR 〉

CN961	1-565-874-11	PIN, CONNECTOR (PC BOARD) 2P

〈 JACK 〉

J902	1-550-104-11	HOLDER, BATTERY (LITHIUM BATTERY)

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* A-7062-718-A MC-77 BOARD, COMPLETE
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(Ref. No. 2000 Series)

〈 CAPACITOR 〉

C650	1-162-953-11	CERAMIC CHIP	100PF	5%	50V
C651	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C652	1-162-968-91	CERAMIC CHIP	0.0047uF	10%	50V
C653	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C655	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C656	1-126-154-11	ELECT	47uF	20%	6.3V

Ref. No.	Part No.	Description	Remark
C657	1-162-963-11	CERAMIC CHIP 680PF 10% 50V	
C659	1-162-638-11	CERAMIC CHIP 1uF 16V	
C661	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C662	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C663	1-162-968-91	CERAMIC CHIP 0.0047uF 10% 50V	
C665	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	
C667	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C668	1-126-154-11	ELECT 47uF 20% 6.3V	
C669	1-162-963-11	CERAMIC CHIP 680PF 10% 50V	
C671	1-162-638-11	CERAMIC CHIP 1uF 16V	
C673	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C674	1-162-953-11	CERAMIC CHIP 100PF 5% 50V	
C675	1-162-638-11	CERAMIC CHIP 1uF 16V	
C676	1-162-638-11	CERAMIC CHIP 1uF 16V	
C677	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C678	1-126-155-11	ELECT 100uF 20% 6.3V	
C679	1-162-638-11	CERAMIC CHIP 1uF 16V	
C680	1-126-155-11	ELECT 100uF 20% 6.3V	
C681	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C683	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C684	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C685	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V	
C686	1-164-633-11	CERAMIC CHIP 0.1uF 10% 25V	
C687	1-162-638-11	CERAMIC CHIP 1uF 16V	

(CONNECTOR)

Ref. No.	Part No.	Description	Remark
CN650	* 1-565-529-21	PIN, CONNECTOR (PC BOARD) 4P	
CN652	1-565-874-11	PIN, CONNECTOR (PC BOARD) 2P	

(DIODE)

Ref. No.	Part No.	Description	Remark
D652	8-719-106-43	DIODE RD9.1MB1	
D655	8-719-404-46	DIODE MA110	

(IC)

Ref. No.	Part No.	Description	Remark
IC650	8-759-822-37	IC LA7293M-TE-L	
IC651	8-759-822-37	IC LA7293M-TE-L	

(JACK)

Ref. No.	Part No.	Description	Remark
J650	1-507-899-00	JACK (SMALL TYPE) (EXT MIC)	
J651	1-563-454-11	JACK, MINIATURE (RFU DC OUT)	

(COIL)

Ref. No.	Part No.	Description	Remark
L650	1-410-369-11	INDUCTOR CHIP 1uH	
L651	1-410-369-11	INDUCTOR CHIP 1uH	
L652	1-410-192-51	INDUCTOR CHIP 1uH	
L653	1-410-192-51	INDUCTOR CHIP 1uH	
L654	1-410-369-11	INDUCTOR CHIP 1uH	

(TRANSISTOR)

Ref. No.	Part No.	Description	Remark
Q650	8-729-109-44	TRANSISTOR 2SK94	
Q651	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q653	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q654	8-729-905-12	TRANSISTOR DTA144EU	
Q655	8-729-905-12	TRANSISTOR DTA144EU	
Q656	8-729-109-44	TRANSISTOR 2SK94	
Q657	8-729-905-35	TRANSISTOR 2SC4081T106R	
Q658	8-729-904-07	TRANSISTOR FMG2-T-149	
Q659	8-729-905-35	TRANSISTOR 2SC4081T106R	

(RESISTOR)

Ref. No.	Part No.	Description	Remark
R650	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R651	1-216-818-91	METAL CHIP 560 5% 1/10W	
R652	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R653	1-216-844-11	METAL CHIP 82K 5% 1/16W	
R654	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R655	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R656	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
R657	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R658	1-216-818-91	METAL CHIP 560 5% 1/10W	
R659	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R660	1-216-844-11	METAL CHIP 82K 5% 1/16W	
R661	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R662	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R663	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
R664	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R667	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R670	1-216-842-11	METAL CHIP 56K 5% 1/16W	
R671	1-216-842-11	METAL CHIP 56K 5% 1/16W	
R672	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R673	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R674	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R678	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R679	1-216-857-11	METAL CHIP 1M 5% 1/16W	

Ref. No.	Part No.	Description				Remark
R680	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R681	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R682	1-216-864-11	METAL CHIP	0			
R683	1-216-864-11	METAL CHIP	0			
R696	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R697	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	

(SWITCH)

Ref. No.	Part No.	Description
S650	1-553-977-00	SWITCH, SLIDE (WIND/HIFI)
S651	1-571-787-41	SWITCH, TACTILE (START/STOP)

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* A-7062-713-A SS-136 (C) BOARD, COMPLETE
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(Ref. No. 3000 Series)

Ref. No.	Part No.	Description
	1-562-880-11	CONNECTOR, CARD EDGE 15P
	1-569-346-11	CONNECTOR, FPC(TRANSLATION)10P
	1-569-420-11	CONNECTOR, BOARD TO BOARD 2P
	1-569-420-11	CONNECTOR, BOARD TO BOARD 2P
	1-633-924-11	FP-248 FLEXIBLE BOARD
	1-633-942-11	FL-26 BOARD
	1-633-942-11	FL-26 BOARD
	3-831-441-11	CLOTH, UNWEAVED (25X6X0.5)
	3-942-606-11	SHEET, GROUND, LR
	3-942-609-02	SHEET (C), INSULATING, HR

(CAPACITOR)

Ref. No.	Part No.	Description				Remark
C400	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C401	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C402	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C406	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C407	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C408	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C409	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C501	1-126-157-11	ELECT	10uF	20%	16V	
C502	1-126-160-11	ELECT	1uF	20%	50V	
C504	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C505	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C506	1-126-163-11	ELECT	4.7uF	20%	50V	
C507	1-164-330-21	CERAMIC CHIP	0.22uF	10%	16V	
C508	1-164-330-21	CERAMIC CHIP	0.22uF	10%	16V	
C509	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V	
C510	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V	
C511	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V	
C512	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C513	1-128-078-11	ELECT	33uF	20%	10V	
C514	1-130-495-00	MYLAR	0.1uF	5%	50V	
C515	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C516	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C517	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V	
C518	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C519	1-164-330-21	CERAMIC CHIP	0.22uF	10%	16V	
C520	1-164-330-21	CERAMIC CHIP	0.22uF	10%	16V	
C521	1-164-330-21	CERAMIC CHIP	0.22uF	10%	16V	
C522	1-162-638-11	CERAMIC CHIP	1uF		16V	
C523	1-128-078-11	ELECT	33uF	20%	10V	
C524	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C525	1-126-162-11	ELECT	3.3uF	20%	50V	
C526	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C527	1-163-038-00	CERAMIC CHIP	0.1uF		25V	(F501 ONLY)
C528	1-162-917-11	CERAMIC CHIP	15PF	5%	50V	
C529	1-162-917-11	CERAMIC CHIP	15PF	5%	50V	
C530	1-126-157-11	ELECT	10uF	20%	16V	
C531	1-126-157-11	ELECT	10uF	20%	16V	
C532	1-162-961-11	CERAMIC CHIP	330PF	10%	50V	
C533	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	
C534	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V	
C535	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C536	1-162-962-11	CERAMIC CHIP	470PF	10%	50V	
C537	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C538	1-162-949-11	CERAMIC CHIP	47PF	5%	50V	
C539	1-162-941-11	CERAMIC CHIP	10PF	0.5PF	50V	
C540	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V	
C541	1-162-945-11	CERAMIC CHIP	22PF	5%	50V	
C542	1-164-247-11	CERAMIC CHIP	0.047uF	10%	16V	
C543	1-164-247-11	CERAMIC CHIP	0.047uF	10%	16V	
C545	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C546	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C547	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C548	1-162-638-11	CERAMIC CHIP	1uF		16V	
C549	1-162-638-11	CERAMIC CHIP	1uF		16V	
C550	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V	

Ref. No.	Part No.	Description				Remark
C551	1-163-023-00	CERAMIC CHIP	0.015uF	5%	50V	
C552	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C553	1-162-962-11	CERAMIC CHIP	470PF	10%	50V	
C554	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
C555	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C556	1-163-035-00	CERAMIC CHIP	0.047uF		50V	
C557	1-163-081-00	CERAMIC CHIP	0.22uF		25V	
C559	1-162-921-11	CERAMIC CHIP	33PF	5%	50V	
C560	1-162-921-11	CERAMIC CHIP	33PF	5%	50V	
C561	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C562	1-126-157-11	ELECT	10uF	20%	16V	
C563	1-126-157-11	ELECT	10uF	20%	16V	
C564	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C565	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C566	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C567	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C568	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	
C569	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C592	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C609	1-128-078-11	ELECT	33uF	20%	10V	
C610	1-124-589-11	ELECT	47uF	20%	16V	
C620	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V	
C625	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C720	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V	
C901	1-162-921-11	CERAMIC CHIP	33PF	5%	50V	
C902	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V	(F501)
C902	1-163-038-00	CERAMIC CHIP	0.1uF		25V	(F555)
C903	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V	
C904	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C905	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V	
C906	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V	
C907	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C908	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C909	1-128-078-11	ELECT	33uF	20%	10V	
C910	1-128-078-11	ELECT	33uF	20%	10V	
C911	1-128-078-11	ELECT	33uF	20%	10V	
C912	1-127-558-11	ELECT(SOLID)	10uF	20%	10V	
C913	1-128-078-11	ELECT	33uF	20%	10V	
C914	1-127-561-11	ELECT(SOLID)	33uF	20%	10V	
C915	1-127-558-11	ELECT(SOLID)	10uF	20%	10V	

Ref. No.	Part No.	Description				Remark
C916	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C917	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C918	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C920	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C921	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C922	1-164-633-11	CERAMIC CHIP	0.1uF	10%	25V	
C923	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V	
C925	1-164-217-11	CERAMIC CHIP	150PF	0.25PF	50V	
C930	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V	
C931	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V	
C932	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V	
C935	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
		〈 CONNECTOR 〉				
CN501	* 1-565-211-11	CONNECTOR, FPC (ZIF) 22P				
CN502	1-569-364-21	CONNECTOR, FPC 19P				
CN503	1-565-878-11	PIN, CONNECTOR (PC BOARD) 6P				
CN505	1-565-874-11	PIN, CONNECTOR (PC BOARD) 2P				
CN506	1-569-627-11	CONNECTOR, BOARD TO BOARD 16P				
CN507	1-569-626-11	CONNECTOR, BOARD TO BOARD 20P				
CN508	1-565-530-11	PIN, CONNECTOR (PC BOARD) 5P				
CN509	1-568-207-11	CONNECTOR, FPC (ZIF) 23P				
		〈 DIODE 〉				
D501	8-719-941-86	DIODE	DAN202U			
D506	8-719-941-86	DIODE	DAN202U			
D510	8-719-404-46	DIODE	MA110			
D901	8-719-938-75	DIODE	SB05-05CP			
D902	8-719-938-75	DIODE	SB05-05CP			
D903	8-719-938-78	DIODE	SB10-05PCP			
		〈 FILTER 〉				
FL400	1-236-550-11	BPF				
FL401	1-236-550-11	BPF				
		〈 IC 〉				
IC501	8-752-818-70	IC	CXP80116-826Q			
IC502	8-759-148-05	IC	CXA8010M			
IC503	8-759-990-55	IC	CXA8006M			
IC504	8-759-805-06	IC	CXA1127M			
IC506	8-752-035-48	IC	CXA1204Q			

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Ref. No.	Part No.	Description	Remark
IC507	8-759-100-93	IC uPC393G2	
IC508	8-759-748-72	IC BR93C46F	
IC508	8-759-979-38	IC AK93C46F	
IC901	8-759-500-42	IC MB3783PFV	
		(COIL)	
L503	1-408-795-21	INDUCTOR, CHIP 330uH	
L505	1-410-381-11	INDUCTOR, CHIP 10uH	
L515	1-412-028-11	INDUCTOR, CHIP 4.7uH	
L901	1-424-104-11	COIL, CHOKE 10uH	
L902	1-424-104-11	COIL, CHOKE 10uH	
L903	1-424-106-11	COIL, CHOKE 47uH	
L904	1-424-106-11	COIL, CHOKE 47uH	
L905	1-424-105-11	COIL, CHOKE 22uH	
L906	1-412-027-11	INDUCTOR, CHIP 2.2uH	
L907	1-412-029-11	INDUCTOR, CHIP 10uH	
L908	1-412-029-11	INDUCTOR, CHIP 10uH	
L909	1-412-029-11	INDUCTOR, CHIP 10uH	
		(IC LINK)	
PS501 ⚠	1-532-605-00	LINK, IC 0.4A	
		(TRANSISTOR)	
Q400	8-729-905-35	TRANSISTOR 2SC4081R	
Q401	8-729-905-35	TRANSISTOR 2SC4081R	
Q402	8-729-905-35	TRANSISTOR 2SC4081R	
Q403	8-729-905-35	TRANSISTOR 2SC4081R	
Q404	8-729-905-35	TRANSISTOR 2SC4081R	
Q502	8-729-905-35	TRANSISTOR 2SC4081R	
Q503	8-729-905-24	TRANSISTOR 2SA1576S	
Q505	8-729-905-35	TRANSISTOR 2SC4081R	
Q506	8-729-905-24	TRANSISTOR 2SA1576S	
Q507	8-729-905-35	TRANSISTOR 2SC4081R	
Q508	8-729-905-24	TRANSISTOR 2SA1576S	
Q509	8-729-905-35	TRANSISTOR 2SC4081R	
Q510	8-729-905-35	TRANSISTOR 2SC4081R	
Q511	8-729-905-24	TRANSISTOR 2SA1576S	
Q512	8-729-907-00	TRANSISTOR DTC114EU	
Q513	8-729-905-35	TRANSISTOR 2SC4081R	
Q514	8-729-905-35	TRANSISTOR 2SC4081R	
Q515	8-729-905-18	TRANSISTOR DTC144EU	
Q516	8-729-905-18	TRANSISTOR DTC144EU	
Q540	8-729-822-48	TRANSISTOR FC101	
Q901	8-729-805-25	TRANSISTOR 2SB1121	
Q902	8-729-805-25	TRANSISTOR 2SB1121	
Q903	8-729-805-25	TRANSISTOR 2SB1121	
Q904	8-729-820-47	TRANSISTOR 2SB1202FAT	
Q905	8-729-905-35	TRANSISTOR 2SC4081R	
		(RESISTOR)	
R400	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R401	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R402	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R403	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R404	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R405	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R406	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R407	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R408	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R409	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R410	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R411	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R412	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R413	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R414	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R415	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R416	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R501	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R502	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R503	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R504	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R506	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R507	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R508	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R510	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R511	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R512	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R513	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R514	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R515	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R516	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R517	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R518	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R519	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description				Remark
R520	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R521	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R522	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R523	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R524	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R525	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R526	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R527	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R528	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R529	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R530	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R531	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R532	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R534	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R535	1-216-843-11	METAL CHIP	68K	5%	1/16W	
R536	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R537	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R538	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R539	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R540	1-216-843-11	METAL CHIP	68K	5%	1/16W	
R541	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R542	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R543	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R544	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R545	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R546	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R547	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R548	1-217-671-11	METAL CHIP	1	5%	1/10W	
R549	1-217-671-11	METAL CHIP	1	5%	1/10W	
R550	1-217-671-11	METAL CHIP	1	5%	1/10W	
R551	1-217-671-11	METAL CHIP	1	5%	1/10W	
R552	1-216-037-00	METAL CHIP	330	5%	1/10W	
R553	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R555	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R556	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R558	1-216-691-11	METAL CHIP	47K	0.5%	1/10W	
R559	1-216-691-11	METAL CHIP	47K	0.5%	1/10W	
R560	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R561	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R562	1-216-813-11	METAL CHIP	220	5%	1/16W	
R563	1-216-789-11	METAL CHIP	2.2	5%	1/16W	
R564	1-216-789-11	METAL CHIP	2.2	5%	1/16W	
R565	1-216-789-11	METAL CHIP	2.2	5%	1/16W	
R566	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R567	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R568	1-216-817-11	METAL CHIP	470	5%	1/16W	
R569	1-216-817-11	METAL CHIP	470	5%	1/16W	
R572	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R573	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R574	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R575	1-216-817-11	METAL CHIP	470	5%	1/16W	
R576	1-216-813-11	METAL CHIP	220	5%	1/16W	
R577	1-216-811-11	METAL CHIP	150	5%	1/16W	
R578	1-216-817-11	METAL CHIP	470	5%	1/16W	
R579	1-216-803-11	METAL CHIP	33	5%	1/16W	
R582	1-216-864-11	METAL CHIP	0			
R583	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R586	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R587	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R589	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R590	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R591	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R592	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R594	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R595	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R596	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R597	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R598	1-216-807-11	METAL CHIP	68	5%	1/16W	
R599	1-216-811-11	METAL CHIP	150	5%	1/16W	
R600	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
R601	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R602	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R603	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R604	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R605	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R606	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R607	1-216-855-11	METAL CHIP	680K	5%	1/16W	
R608	1-216-859-11	METAL GLAZE	1.5M	5%	1/16W	
R609	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R610	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R611	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R613	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R614	1-216-833-11	METAL CHIP	10K	5%	1/16W	

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Ref. No.	Part No.	Description	Remark
R615	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R616	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R618	1-216-847-11	METAL CHIP 150K 5% 1/16W	
R619	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R620	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R621	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R622	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R623	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R624	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R625	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R626	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R627	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R628	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R629	1-216-182-00	METAL GLAZE 220 5% 1/8W	
R630	1-216-182-00	METAL GLAZE 220 5% 1/8W	
R631	1-216-815-11	METAL CHIP 330 5% 1/16W	
R632	1-216-813-11	METAL CHIP 220 5% 1/16W	
R689	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R714	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R715	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R716	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R717	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R719	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R720	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R726	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R727	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R728	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R730	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R735	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R761	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R762	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R763	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R764	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R765	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R810	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R811	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R812	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R813	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R840	1-216-296-00	METAL CHIP 0 5% 1/8W	
R841	1-216-296-00	METAL CHIP 0 5% 1/8W	
R842	1-216-296-00	METAL CHIP 0 5% 1/8W	
R850	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	

Ref. No.	Part No.	Description	Remark
R851	1-216-847-11	METAL CHIP 150K 5% 1/16W	
R855	1-216-864-11	METAL CHIP 0	
R857	1-216-861-11	METAL CHIP 2.2M 5% 1/16W	
R901	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R902	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R903	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R904	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R905	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R906	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R907	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R908	1-216-166-00	METAL GLAZE 47 5% 1/8W	
R909	1-216-166-00	METAL GLAZE 47 5% 1/8W	
R910	1-216-164-00	METAL GLAZE 39 5% 1/8W	
R911	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R912	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R913	1-216-813-11	METAL CHIP 220 5% 1/16W	
R914	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R915	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R916	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R924	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R927	1-216-833-11	METAL CHIP 10K 5% 1/16W	

〈 VARIABLE RESISTOR 〉

Ref. No.	Part No.	Description	Remark
RV901	1-238-089-11	RES, ADJ CERMET4.7K	
RV902	1-238-087-11	RES, ADJ CERMET1K	

〈 FLEXIBLE BOARD 〉

Ref. No.	Part No.	Description	Remark
W510	1-633-923-11	FP-252 FLEXIBLE BOARD	

〈 CRYSTAL 〉

Ref. No.	Part No.	Description	Remark
X501	1-577-467-21	VIBRATOR, CRYSTAL (16MHz)	
X502	1-567-700-21	VIBRATOR, CRYSTAL (9.4755MHz)	

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* A-7071-402-A SW-175 BOARD, COMPLETE

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(Ref. No. 2000 Series)

〈 CONNECTOR 〉

Ref. No.	Part No.	Description	Remark
CN930	* 1-566-761-11	PIN, CONNECTOR (PC BOARD) 6P	
CN931	1-575-846-11	CONNECTOR, FPC (NON ZIF) 6P	

Ref. No.	Part No.	Description	Remark
		(DIODE)	
D900	8-719-977-34	DIODE DTZ12	
D901	8-719-977-34	DIODE DTZ12	
D902	8-719-404-46	DIODE MA110	
D903	8-719-977-34	DIODE DTZ12	
D904	8-719-977-34	DIODE DTZ12	
D905	8-719-404-46	DIODE MA110	
D906	8-719-404-46	DIODE MA110	
D907	8-719-404-46	DIODE MA110	
D908	8-719-976-97	DIODE DTZ5.1	
		(JACK)	
J900	1-507-929-11	JACK (EARPHONE)	
J901	1-565-276-21	JACK, ULTRA SMALL 1P (REMOTE)	
		(COIL)	
L900	1-410-369-11	INDUCTOR CHIP 1uH	
L901	1-410-369-11	INDUCTOR CHIP 1uH	
L902	1-410-369-11	INDUCTOR CHIP 1uH	
L903	1-410-192-51	INDUCTOR CHIP 1uH	
L904	1-410-369-11	INDUCTOR CHIP 1uH	
		(TRANSISTOR)	
Q900	8-729-901-01	TRANSISTOR DTC144EK	
Q901	8-729-902-XX	TRANSISTOR DTC114TK	
		(RESISTOR)	
R900	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R901	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R902	1-216-295-00	METAL CHIP 0 5% 1/10W	
R915	1-216-296-00	METAL CHIP 0 5% 1/8W	
		(SWITCH)	
S900	1-570-870-11	SWITCH, SLIDE (STANDBY/LOCK)	
S901	1-571-838-11	SWITCH, TACTIL (START/STOP)	

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* A-7062-715-A VA-68 BOARD, COMPLETE

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(Ref. No. 1000 Series)

Ref. No.	Part No.	Description	Remark
	3-719-695-01	SCREW (M1.7X3.5), SPECIAL HEAD	
	3-744-842-01	SUPPORT, CT PC BOARD	
		(CAPACITOR)	
C071	1-128-004-11	ELECT CHIP 10uF 20% 16V	
C072	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C101	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C102	1-128-004-11	ELECT CHIP 10uF 20% 16V	
C103	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C104	1-162-947-11	CERAMIC CHIP 33PF 5% 50V	
C105	1-162-965-11	CERAMIC CHIP 0.0015uF 10% 50V	
C106	1-162-958-11	CERAMIC CHIP 270PF 5% 50V	
C108	1-162-958-11	CERAMIC CHIP 270PF 5% 50V	
C110	1-162-945-11	CERAMIC CHIP 22PF 5% 50V	
C111	1-162-995-11	CERAMIC CHIP 0.022uF 50V	
C112	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C113	1-162-942-11	CERAMIC CHIP 12PF 5% 50V	
C116	1-162-945-11	CERAMIC CHIP 22PF 5% 50V	
C117	1-162-947-11	CERAMIC CHIP 33PF 5% 50V	
C121	1-164-222-11	CERAMIC CHIP 0.22uF 25V	
C122	1-128-004-11	ELECT CHIP 10uF 20% 16V	
C126	1-162-949-11	CERAMIC CHIP 47PF 5% 50V	
C127	1-162-952-11	CERAMIC CHIP 82PF 5% 50V	
C129	1-162-956-11	CERAMIC CHIP 180PF 5% 50V	
C141	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C143	1-162-948-11	CERAMIC CHIP 39PF 5% 50V	
C144	1-162-945-11	CERAMIC CHIP 22PF 5% 50V	
C146	1-162-995-11	CERAMIC CHIP 0.022uF 50V	
C147	1-162-995-11	CERAMIC CHIP 0.022uF 50V	
C171	1-124-778-00	ELECT CHIP 22uF 20% 6.3V	
C172	1-162-945-11	CERAMIC CHIP 22PF 5% 50V	
C181	1-164-005-11	CERAMIC CHIP 0.47uF 25V	
C183	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C201	1-162-959-11	CERAMIC CHIP 330PF 5% 50V	
C202	1-162-957-11	CERAMIC CHIP 220PF 5% 50V	
C203	1-164-005-11	CERAMIC CHIP 0.47uF 25V	
C204	1-128-004-11	ELECT CHIP 10uF 20% 16V	
C205	1-128-004-11	ELECT CHIP 10uF 20% 16V	
C206	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C207	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C208	1-128-004-11	ELECT CHIP 10uF 20% 16V	
C209	1-126-154-11	ELECT 47uF 20% 6.3V	
C210	1-128-008-11	ELECT CHIP 3.3uF 20% 35V	

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Ref. No.	Part No.	Description				Remark
C211	1-128-004-11	ELECT CHIP	10uF	20%	16V	
C212	1-162-974-11	CERAMIC CHIP	0. 01uF		50V	
C213	1-128-008-11	ELECT CHIP	3. 3uF	20%	35V	
C214	1-162-950-11	CERAMIC CHIP	56PF	5%	50V	
C215	1-128-004-11	ELECT CHIP	10uF	20%	16V	
C216	1-126-607-11	ELECT CHIP	47uF	20%	4V	
C217	1-162-945-11	CERAMIC CHIP	22PF	5%	50V	
C218	1-126-209-11	ELECT CHIP	100uF	20%	4V	
C219	1-162-955-11	CERAMIC CHIP	150PF	5%	50V	
C220	1-162-942-11	CERAMIC CHIP	12PF	5%	50V	
C221	1-162-953-11	CERAMIC CHIP	100PF	5%	50V	
C222	1-162-948-11	CERAMIC CHIP	39PF	5%	50V	
C224	1-135-180-21	TANTALUM CHIP	3. 3uF	20%	6. 3V	
C225	1-164-156-11	CERAMIC CHIP	0. 1uF		25V	
C226	1-162-974-11	CERAMIC CHIP	0. 01uF		50V	
C227	1-135-180-21	TANTALUM CHIP	3. 3uF	20%	6. 3V	
C228	1-163-038-00	CERAMIC CHIP	0. 1uF		25V	
C229	1-135-180-21	TANTALUM CHIP	3. 3uF	20%	6. 3V	
C230	1-162-974-11	CERAMIC CHIP	0. 01uF		50V	
C231	1-162-974-11	CERAMIC CHIP	0. 01uF		50V	
C232	1-162-638-11	CERAMIC CHIP	1uF		16V	
C233	1-162-974-11	CERAMIC CHIP	0. 01uF		50V	
C235	1-128-004-11	ELECT CHIP	10uF	20%	16V	
C236	1-162-950-11	CERAMIC CHIP	56PF	5%	50V	
C237	1-128-004-11	ELECT CHIP	10uF	20%	16V	
C238	1-162-953-11	CERAMIC CHIP	100PF	5%	50V	
C239	1-162-974-11	CERAMIC CHIP	0. 01uF		50V	
C240	1-128-004-11	ELECT CHIP	10uF	20%	16V	
C241	1-128-004-11	ELECT CHIP	10uF	20%	16V	
C242	1-128-003-11	ELECT CHIP	22uF	20%	4V	
C245	1-164-160-11	CERAMIC CHIP	20PF	10%	50V	
C246	1-128-003-11	ELECT CHIP	22uF	20%	4V	
C247	1-164-005-11	CERAMIC CHIP	0. 47uF		25V	
C248	1-128-004-11	ELECT CHIP	10uF	20%	16V	
C249	1-128-004-11	ELECT CHIP	10uF	20%	16V	
C250	1-128-004-11	ELECT CHIP	10uF	20%	16V	
C251	1-128-004-11	ELECT CHIP	10uF	20%	16V	
C252	1-164-222-11	CERAMIC CHIP	0. 22uF		25V	
C253	1-164-005-11	CERAMIC CHIP	0. 47uF		25V	
C254	1-128-004-11	ELECT CHIP	10uF	20%	16V	
C255	1-128-013-11	ELECT CHIP	1uF	20%	50V	
C256	1-126-246-11	ELECT CHIP	220uF	20%	4V	
C257	1-162-974-11	CERAMIC CHIP	0. 01uF		50V	
C258	1-128-004-11	ELECT CHIP	10uF	20%	16V	
C259	1-163-035-11	CERAMIC CHIP	0. 047uF	10%	50V	
C262	1-162-995-11	CERAMIC CHIP	0. 022uF		50V	
C263	1-126-207-11	ELECT CHIP	33uF	20%	4V	
C264	1-162-962-11	CERAMIC CHIP	470PF	10%	50V	
C265	1-126-205-11	ELECT CHIP	47uF	20%	6. 3V	
C267	1-124-778-00	ELECT CHIP	22uF	20%	6. 3V	
C268	1-162-974-11	CERAMIC CHIP	0. 01uF		50V	
C269	1-128-003-11	ELECT CHIP	22uF	20%	4V	
C270	1-163-129-00	CERAMIC CHIP	330PF	5%	50V	
C271	1-163-131-00	CERAMIC CHIP	390PF	5%	50V	
C273	1-162-974-11	CERAMIC CHIP	0. 01uF		50V	
C274	1-128-004-11	ELECT CHIP	10uF	20%	16V	
C275	1-162-974-11	CERAMIC CHIP	0. 01uF		50V	
C276	1-128-004-11	ELECT CHIP	10uF	20%	16V	
C277	1-162-944-11	CERAMIC CHIP	18PF	5%	50V	
C278	1-163-135-00	CERAMIC CHIP	560PF	5%	50V	
C281	1-162-949-11	CERAMIC CHIP	47PF	5%	50V	
C285	1-163-035-00	CERAMIC CHIP	0. 047uF		50V	
C286	1-162-974-11	CERAMIC CHIP	0. 01uF		50V	
C287	1-164-156-11	CERAMIC CHIP	0. 1uF		25V	
C288	1-126-176-11	ELECT	220uF	20%	10V	
C289	1-162-948-11	CERAMIC CHIP	39PF	5%	50V	
C301	1-162-945-11	CERAMIC CHIP	22PF	5%	50V	
C302	1-162-974-11	CERAMIC CHIP	0. 01uF		50V	
C303	1-162-970-11	CERAMIC CHIP	0. 01uF	10%	25V	
C305	1-162-945-11	CERAMIC CHIP	22PF	5%	50V	
C306	1-162-970-11	CERAMIC CHIP	0. 01uF	10%	25V	
C307	1-128-004-11	ELECT CHIP	10uF	20%	16V	
C308	1-162-995-11	CERAMIC CHIP	0. 022uF		50V	
C309	1-135-176-21	TANTALUM CHIP	0. 68uF	10%	20V	
C310	1-128-013-11	ELECT CHIP	1uF	20%	50V	
C311	1-128-013-11	ELECT CHIP	1uF	20%	50V	
C312	1-162-959-11	CERAMIC CHIP	330PF	5%	50V	
C313	1-162-970-11	CERAMIC CHIP	0. 01uF	10%	25V	
C314	1-162-926-11	CERAMIC CHIP	82PF	5%	50V	
C315	1-162-970-11	CERAMIC CHIP	0. 01uF	10%	25V	
C316	1-128-004-11	ELECT CHIP	10uF	20%	16V	
C317	1-128-004-11	ELECT CHIP	10uF	20%	16V	
C318	1-162-974-11	CERAMIC CHIP	0. 01uF		50V	

Ref. No.	Part No.	Description				Remark
C319	1-164-217-11	CERAMIC CHIP	150PF	0.25PF	50V	
C320	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C321	1-162-949-11	CERAMIC CHIP	47PF	5%	50V	
C322	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C323	1-162-952-11	CERAMIC CHIP	82PF	5%	50V	
C324	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V	
C325	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C326	1-162-954-11	CERAMIC CHIP	120PF	5%	50V	
C327	1-162-951-11	CERAMIC CHIP	68PF	5%	50V	
C328	1-162-950-11	CERAMIC CHIP	56PF	5%	50V	
C329	1-162-953-11	CERAMIC CHIP	100PF	5%	50V	
C330	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C331	1-128-004-11	ELECT CHIP	10uF	20%	16V	
C332	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C333	1-162-950-11	CERAMIC CHIP	56PF	5%	50V	
C334	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	
C335	1-162-957-11	CERAMIC CHIP	220PF	5%	50V	
C336	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C337	1-162-974-11	CERAMIC CHIP	0.01uF		50V	
C338	1-162-995-11	CERAMIC CHIP	0.022uF		50V	
C339	1-162-947-11	CERAMIC CHIP	33PF	5%	50V	
C340	1-162-937-11	CERAMIC CHIP	6PF	0.5PF	50V	
C400	1-162-971-11	CERAMIC CHIP	0.001uF		50V	
C401	1-162-971-11	CERAMIC CHIP	0.001uF		50V	
C402	1-162-971-11	CERAMIC CHIP	0.001uF		50V	
C403	1-162-971-11	CERAMIC CHIP	0.001uF		50V	
C404	1-162-971-11	CERAMIC CHIP	0.001uF		50V	
C405	1-162-971-11	CERAMIC CHIP	0.001uF		50V	
C406	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C407	1-128-006-11	ELECT CHIP	4.7uF	20%	25V	
C408	1-126-207-11	ELECT CHIP	33uF	20%	4V	
C409	1-128-006-11	ELECT CHIP	4.7uF	20%	25V	
C411	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	
C412	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C414	1-126-206-11	ELECT CHIP	100uF	20%	6.3V	
C416	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C417	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V	
C418	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C419	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	
C421	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V	
C423	1-162-949-11	CERAMIC CHIP	47PF	5%	50V	
C424	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C427	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V	
C428	1-162-977-11	CERAMIC CHIP	0.0018uF	10%	50V	
C429	1-128-013-11	ELECT CHIP	1uF	20%	50V	
C430	1-126-607-11	ELECT CHIP	47uF	20%	4V	
C431	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	
C432	1-128-003-11	ELECT CHIP	22uF	20%	4V	
C433	1-128-003-11	ELECT CHIP	22uF	20%	4V	
C434	1-128-004-11	ELECT CHIP	10uF	20%	16V	
C435	1-128-013-11	ELECT CHIP	1uF	20%	50V	
C436	1-128-006-11	ELECT CHIP	4.7uF	20%	25V	
C437	1-162-957-11	CERAMIC CHIP	220PF	5%	50V	
C438	1-128-013-11	ELECT CHIP	1uF	20%	50V	
C439	1-128-013-11	ELECT CHIP	1uF	20%	50V	
C440	1-128-013-11	ELECT CHIP	1uF	20%	50V	
C441	1-162-637-11	CERAMIC CHIP	0.47uF		16V	
C443	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	
C445	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	
C446	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	
C448	1-162-949-11	CERAMIC CHIP	47PF	5%	50V	
C449	1-162-638-11	CERAMIC CHIP	1uF		16V	
C450	1-162-971-11	CERAMIC CHIP	0.001uF		50V	
C451	1-128-006-11	ELECT CHIP	4.7uF	20%	25V	
C453	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	
C454	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C456	1-126-206-11	ELECT CHIP	100uF	20%	6.3V	
C458	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	
C459	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V	
C460	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C461	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	
C463	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V	
C466	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C468	1-162-957-11	CERAMIC CHIP	220PF	10%	50V	
C469	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V	
C470	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V	
C471	1-162-977-11	CERAMIC CHIP	0.0018uF	10%	50V	
C472	1-128-013-11	ELECT CHIP	1uF	20%	50V	
C473	1-126-607-11	ELECT CHIP	47uF	20%	4V	
C474	1-126-205-11	ELECT CHIP	47uF	20%	6.3V	
C475	1-128-003-11	ELECT CHIP	22uF	20%	4V	
C476	1-128-003-11	ELECT CHIP	22uF	20%	4V	
C477	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V	

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Ref. No.	Part No.	Description				Remark
C478	1-128-004-11	ELECT CHIP	10uF	20%	16V	
C479	1-128-013-11	ELECT CHIP	1uF	20%	50V	
C480	1-128-006-11	ELECT CHIP	4.7uF	20%	25V	
C481	1-162-957-11	CERAMIC CHIP	220PF	5%	50V	
C482	1-128-013-11	ELECT CHIP	1uF	20%	50V	
C483	1-128-013-11	ELECT CHIP	1uF	20%	50V	
C484	1-128-013-11	ELECT CHIP	1uF	20%	50V	
C485	1-162-637-11	CERAMIC CHIP	0.47uF		16V	
C486	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C487	1-163-038-00	CERAMIC CHIP	0.1uF		25V	
C488	1-128-006-11	ELECT CHIP	4.7uF	20%	25V	
C490	1-128-006-11	ELECT CHIP	4.7uF	20%	25V	
C491	1-162-971-11	CERAMIC CHIP	0.001uF		50V	
C492	1-124-778-00	ELECT CHIP	22uF	20%	6.3V	
C493	1-162-638-11	CERAMIC CHIP	1uF		16V	
C494	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C495	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C601	1-162-951-11	CERAMIC CHIP	68pF	5%	50V	
C610	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	
C611	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	
C616	1-164-634-11	CERAMIC CHIP	1uF		16V	
C617	1-164-634-11	CERAMIC CHIP	1uF		16V	
C620	1-162-971-11	CERAMIC CHIP	0.001uF		50V	
C621	1-162-971-11	CERAMIC CHIP	0.001uF		50V	
		〈 FILTER, CERAMIC 〉				
CF301	1-567-727-11	FILTER, CERAMIC				
		〈 CONNECTOR 〉				
CN401	* 1-566-761-11	PIN, CONNECTOR (PC BOARD) 6P				
CN506	1-569-486-11	CONNECTOR, BOARD TO BOARD 16P				
CN507	1-569-485-11	CONNECTOR, BOARD TO BOARD 20P				
CN508	1-569-478-21	CONNECTOR, FPC 20P				
CN601	* 1-566-764-11	PIN, CONNECTOR (PC BOARD) 9P				
CN703	1-568-359-41	CONNECTOR, BOARD TO BOARD 20P				
CN704	1-569-363-21	CONNECTOR, FPC 15P				
CN901	1-566-524-21	CONNECTOR, FPC (ZIF) 8P				
		〈 DIODE 〉				
D101	8-719-800-76	DIODE	1SS226			
D202	8-719-941-86	DIODE	DAN202U			
D203	8-719-941-86	DIODE	DAN202U			
D204	8-719-404-46	DIODE	MA110			
D205	8-719-941-86	DIODE	DAN202U			
D207	8-719-941-86	DIODE	DAN202U			
D212	8-719-941-86	DIODE	DAN202U (F501 ONLY)			
D215	8-719-404-46	DIODE	MA110			
D216	8-719-404-46	DIODE	MA110			
D217	8-719-801-41	DIODE	1SS196			
D400	8-719-941-86	DIODE	DAN202U			
D401	8-719-941-86	DIODE	DAN202U			
D402	8-719-404-46	DIODE	MA110			
		〈 FILTER 〉				
FL201	1-236-751-21	FILTER, LOW PASS				
FL203	1-236-757-21	FILTER, LOW PASS (C)				
FL204	1-415-818-11	DELAY LINE, LC (Y)				
FL301	1-236-575-11	B.P.F (PAL-M)				
FL302	1-236-146-11	FILTER, BAND PASS				
		〈 IC 〉				
IC001	8-759-999-02	IC	TL1596CDSB			
IC201	8-752-036-19	IC	CXA1207R			
IC202	8-752-332-68	IC	CXL5502M			
IC203	8-752-036-20	IC	CXA1208R			
IC205	8-759-710-29	IC	NJM2235M			
IC206	8-759-320-76	IC	HA118070FP			
IC207	8-759-710-07	IC	NJM2234M			
IC400	8-759-823-19	IC	CXA-1488R			
IC401	8-759-823-21	IC	CXA-1536Q			
IC402	8-759-823-19	IC	CXA-1488R			
IC403	8-759-603-27	IC	M5201FP			
IC405	8-759-009-22	IC	MC14094BF			
		〈 JACK 〉				
J201	1-569-556-11	JACK (AUDIO, VIDEO IN/OUT)				
		〈 COIL 〉				
L101	1-412-032-11	INDUCTOR CHIP 100uH				
L102	1-412-280-31	INDUCTOR CHIP 330uH				
L103	1-410-167-41	INDUCTOR CHIP 820uH				
L104	1-410-387-11	INDUCTOR CHIP 33uH				
L105	1-410-657-21	INDUCTOR CHIP 180uH				

Ref. No.	Part No.	Description	Remark
L106	1-410-387-11	INDUCTOR CHIP 33uH	
L109	1-410-381-11	INDUCTOR CHIP 10uH	
L110	1-410-657-21	INDUCTOR CHIP 180uH	
L123	1-410-655-31	INDUCTOR CHIP 120uH	
L124	1-412-280-31	INDUCTOR CHIP 330uH	
L125	1-410-380-31	INDUCTOR CHIP 8.2uH	
L126	1-412-032-11	INDUCTOR CHIP 100uH	
L171	1-410-392-11	INDUCTOR CHIP 82uH	
L201	1-410-390-11	INDUCTOR CHIP 56uH	
L202	1-410-392-11	INDUCTOR CHIP 82uH	
L203	1-410-370-31	INDUCTOR CHIP 1.2uH	
L204	1-410-656-11	INDUCTOR CHIP 150uH	
L208	1-410-390-11	INDUCTOR CHIP 56uH	
L209	1-412-031-11	INDUCTOR CHIP 47uH	
L210	1-410-393-11	INDUCTOR CHIP 100uH	
L211	1-410-375-11	INDUCTOR CHIP 3.3uH	
L213	1-410-390-11	INDUCTOR CHIP 56uH	
L214	1-410-377-31	INDUCTOR CHIP 4.7uH	
L301	1-410-393-11	INDUCTOR CHIP 100uH	
L302	1-410-385-11	INDUCTOR CHIP 22uH	
L303	1-410-385-11	INDUCTOR CHIP 22uH	
L304	1-410-393-11	INDUCTOR CHIP 100uH	
L305	1-410-393-11	INDUCTOR CHIP 100uH	
L306	1-410-655-31	INDUCTOR CHIP 120uH	
L307	1-410-656-11	INDUCTOR CHIP 150uH	
L308	1-410-377-31	INDUCTOR CHIP 4.7uH	
		< TRANSISTOR >	
Q004	8-729-905-35	TRANSISTOR 2SC4081R	
Q005	8-729-905-35	TRANSISTOR 2SC4081R	
Q059	8-729-905-18	TRANSISTOR DTC144EU (F501 ONLY)	
Q101	8-729-905-23	TRANSISTOR 2SA1576R	
Q102	8-729-905-18	TRANSISTOR DTC144EU	
Q105	8-729-905-35	TRANSISTOR 2SC4081R	
Q106	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q107	8-729-905-12	TRANSISTOR DTA144EU	
Q109	8-729-905-35	TRANSISTOR 2SC4081R	
Q110	8-729-905-12	TRANSISTOR DTA144EU	
Q116	8-729-905-18	TRANSISTOR DTC144EU	
Q119	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q121	8-729-905-23	TRANSISTOR 2SA1576R	
Q122	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q123	8-729-905-35	TRANSISTOR 2SC4081R	
Q140	8-729-905-12	TRANSISTOR DTA144EU	
Q141	8-729-905-35	TRANSISTOR 2SC4081R	
Q142	8-729-101-07	TRANSISTOR 2SB798-T1-DLDK	
Q171	8-729-905-35	TRANSISTOR 2SC4081R	
Q172	8-729-905-35	TRANSISTOR 2SC4081R	
Q191	8-729-905-35	TRANSISTOR 2SC4081R	
Q192	8-729-905-18	TRANSISTOR DTC144EU	
Q201	8-729-905-35	TRANSISTOR 2SC4081R	
Q202	8-729-905-12	TRANSISTOR DTA144EU	
Q203	8-729-905-23	TRANSISTOR 2SA1576R	
Q204	8-729-905-35	TRANSISTOR 2SC4081R	
Q205	8-729-100-66	TRANSISTOR 2SC1623	
Q206	8-729-905-35	TRANSISTOR 2SC4081R	
Q209	8-729-905-18	TRANSISTOR DTC144EU	
Q210	8-729-905-23	TRANSISTOR 2SA1576R	
Q211	8-729-905-35	TRANSISTOR 2SC4081R	
Q212	8-729-905-35	TRANSISTOR 2SC4081R	
Q213	8-729-904-07	TRANSISTOR FMG2	
Q215	8-729-905-23	TRANSISTOR 2SA1576R	
Q216	8-729-905-18	TRANSISTOR DTC144EU	
Q220	8-729-141-48	TRANSISTOR 2SB624-BV345	
Q221	8-729-905-18	TRANSISTOR DTC144EU	
Q222	8-729-905-12	TRANSISTOR DTA144EU	
Q223	8-729-905-35	TRANSISTOR 2SC4081R	
Q224	8-729-905-35	TRANSISTOR 2SC4081R	
Q225	8-729-905-12	TRANSISTOR DTA144EU	
Q226	8-729-905-35	TRANSISTOR 2SC4081R	
Q227	8-729-905-35	TRANSISTOR 2SC4081R	
Q228	8-729-905-23	TRANSISTOR 2SA1576R	
Q229	8-729-905-35	TRANSISTOR 2SC4081R	
Q231	8-729-905-35	TRANSISTOR 2SC4081R	
Q232	8-729-905-35	TRANSISTOR 2SC4081R	
Q238	8-729-905-23	TRANSISTOR 2SA1576R	
Q240	8-729-905-35	TRANSISTOR 2SC4081R	
Q241	8-729-905-23	TRANSISTOR 2SA1576R	
Q244	8-729-905-18	TRANSISTOR DTC144EU	
Q245	8-729-905-XX	TRANSISTOR DTC114TU	
Q246	8-729-905-XX	TRANSISTOR DTC114TU	
Q247	8-729-905-XX	TRANSISTOR DTC114TU	
Q248	8-729-905-18	TRANSISTOR DTC144EU	

Ref. No.	Part No.	Description				Remark
Q250	8-729-905-35	TRANSISTOR	2SC4081R			
Q301	8-729-905-23	TRANSISTOR	2SA1576R			
Q303	8-729-905-35	TRANSISTOR	2SC4081R			
Q304	8-729-905-35	TRANSISTOR	2SC4081R			
Q306	8-729-905-35	TRANSISTOR	2SC4081R			
Q307	8-729-905-18	TRANSISTOR	DTC144EU			
Q310	8-729-905-35	TRANSISTOR	2SC4081R			
Q311	8-729-905-35	TRANSISTOR	2SC4081R			
Q312	8-729-905-12	TRANSISTOR	DTA144EU			
Q351	8-729-905-35	TRANSISTOR	2SC4081R			
Q402	8-729-905-35	TRANSISTOR	2SC4081R			
Q403	8-729-904-07	TRANSISTOR	FMG2			
Q404	8-729-904-07	TRANSISTOR	FMG2			
Q405	8-729-905-18	TRANSISTOR	DTC144EU			
Q406	8-729-905-18	TRANSISTOR	DTC144EU			
Q407	8-729-905-XX	TRANSISTOR	DTC114TU			
Q408	8-729-905-XX	TRANSISTOR	DTC114TU			
Q409	8-729-216-22	TRANSISTOR	2SA1162			
Q410	8-729-907-39	TRANSISTOR	IMD2			
Q412	8-729-402-81	TRANSISTOR	XN4501			
Q413	8-729-905-18	TRANSISTOR	DTC144EU			
Q414	8-729-904-07	TRANSISTOR	FMG2			
Q415	8-729-905-23	TRANSISTOR	2SA1576R			

〈 RESISTOR 〉

Ref. No.	Part No.	Description				Remark
R008	1-216-864-11	METAL CHIP	0			
R009	1-216-864-11	METAL CHIP	0			
R019	1-216-864-11	METAL CHIP	0			
R020	1-216-818-11	METAL CHIP	560	5%	1/16W	
R021	1-216-864-11	METAL CHIP	0			
R025	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R032	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
R034	1-216-820-11	METAL CHIP	820	5%	1/16W	
R036	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	
R041	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R042	1-216-824-11	METAL CHIP	1.8K	5%	1/16W	
R043	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R044	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R045	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R047	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R048	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R049	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R050	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R051	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R052	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R053	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R060	1-216-864-11	METAL CHIP	0			
R061	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R062	1-216-847-11	METAL CHIP	150K	5%	1/16W	
R063	1-216-847-11	METAL CHIP	150K	5%	1/16W	
R064	1-216-864-11	METAL CHIP	0			
R065	1-216-817-11	METAL CHIP	470	5%	1/16W	
R066	1-216-809-11	METAL CHIP	100	5%	1/16W	
R071	1-216-661-11	METAL CHIP	2.7K	0.5%	1/10W	
R072	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R073	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R074	1-216-809-11	METAL CHIP	100	5%	1/16W	
R087	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
R089	1-216-838-11	METAL CHIP	27K	5%	1/16W	
R093	1-216-820-11	METAL CHIP	820	5%	1/16W	
R101	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R102	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R103	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R104	1-216-811-11	METAL CHIP	150	5%	1/16W	
R108	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R109	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R110	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R111	1-216-818-11	METAL CHIP	560	5%	1/16W	
R112	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	
R113	1-216-812-11	METAL CHIP	180	5%	1/16W	
R114	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R115	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R116	1-216-817-11	METAL CHIP	470	5%	1/16W	
R117	1-216-808-11	METAL CHIP	82	5%	1/16W	
R118	1-216-864-11	METAL CHIP	0			
R119	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	
R120	1-216-824-11	METAL CHIP	1.8K	5%	1/16W	
R121	1-216-864-11	METAL CHIP	0			
R124	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R125	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R126	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R127	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R128	1-216-864-11	METAL CHIP	0			
R130	1-216-864-11	METAL CHIP	0			

Ref. No.	Part No.	Description				Remark
R132	1-216-864-11	METAL CHIP	0			
R133	1-216-818-11	METAL CHIP	560	5%	1/16W	
R134	1-216-818-11	METAL CHIP	560	5%	1/16W	
R136	1-216-295-00	METAL CHIP	0	5%	1/10W	
R137	1-216-295-00	METAL CHIP	0	5%	1/10W	
R141	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
R145	1-216-295-00	METAL CHIP	0	5%	1/10W	
R158	1-216-818-11	METAL CHIP	560	5%	1/16W	
R159	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R160	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R161	1-216-817-11	METAL CHIP	470	5%	1/16W	
R162	1-216-817-11	METAL CHIP	470	5%	1/16W	
R163	1-216-814-11	METAL CHIP	270	5%	1/16W	
R164	1-216-817-11	METAL CHIP	470	5%	1/16W	
R165	1-216-809-11	METAL CHIP	100	5%	1/16W	
R166	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R167	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R168	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R170	1-216-820-11	METAL CHIP	820	5%	1/16W	
R171	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R172	1-216-840-11	METAL CHIP	39K	5%	1/16W	
R173	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R174	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R175	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R176	1-216-864-11	METAL CHIP	0			
R178	1-216-818-11	METAL CHIP	560	5%	1/16W	
R179	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R181	1-216-804-11	METAL CHIP	39	5%	1/16W	
R182	1-216-804-11	METAL CHIP	39	5%	1/16W	
R183	1-216-807-11	METAL CHIP	68	5%	1/16W	
R184	1-216-138-00	METAL CHIP	3.3	5%	1/8W	
R185	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	
R186	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R187	1-216-820-11	METAL CHIP	820	5%	1/16W	
R188	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R191	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R192	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R193	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R201	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R202	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R203	1-216-814-11	METAL CHIP	270	5%	1/16W	
R204	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R207	1-216-864-11	METAL CHIP	0			
R208	1-216-816-11	METAL CHIP	390	5%	1/16W	
R209	1-216-814-11	METAL CHIP	270	5%	1/16W	
R210	1-216-819-11	METAL CHIP	680	5%	1/16W	
R211	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R212	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	
R213	1-216-817-11	METAL CHIP	470	5%	1/16W	
R214	1-216-820-11	METAL CHIP	820	5%	1/16W	
R215	1-216-817-11	METAL CHIP	470	5%	1/16W	
R216	1-216-817-11	METAL CHIP	470	5%	1/16W	
R219	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R220	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R221	1-216-844-11	METAL CHIP	82K	5%	1/16W	
R222	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R224	1-216-864-11	METAL CHIP	0			
R225	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R226	1-216-817-11	METAL CHIP	470	5%	1/16W	
R227	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R228	1-216-842-11	METAL CHIP	56K	5%	1/16W	
R229	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R230	1-216-838-11	METAL CHIP	27K	5%	1/16W	
R231	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R232	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R233	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R234	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R235	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R236	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R237	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R239	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R241	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R243	1-216-864-11	METAL CHIP	0			
R244	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R245	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R246	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R247	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R248	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R249	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R250	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R251	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R252	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R255	1-216-833-11	METAL CHIP	10K	5%	1/16W	

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Ref. No.	Part No.	Description				Remark
R256	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R257	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R258	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R259	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R260	1-216-829-11	METAL CHIP	4. 7K	5%	1/16W	
R261	1-216-827-11	METAL CHIP	3. 3K	5%	1/16W	
R262	1-216-832-11	METAL CHIP	8. 2K	5%	1/16W	
R263	1-216-822-11	METAL CHIP	1. 2K	5%	1/16W	
R265	1-216-643-11	METAL CHIP	470	0. 5%	1/10W	
R267	1-216-827-11	METAL CHIP	3. 3K	5%	1/16W	
R276	1-216-820-11	METAL CHIP	820	5%	1/16W	
R278	1-216-820-11	METAL CHIP	820	5%	1/16W	
R280	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R281	1-216-824-11	METAL CHIP	1. 8K	5%	1/16W	
R282	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R283	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R284	1-216-825-11	METAL CHIP	2. 2K	5%	1/16W	
R285	1-216-818-11	METAL CHIP	560	5%	1/16W	
R286	1-216-810-11	METAL CHIP	120	5%	1/16W	
R287	1-216-813-11	METAL CHIP	220	5%	1/16W	
R289	1-216-864-11	METAL CHIP	0			
R290	1-216-815-11	METAL CHIP	330	5%	1/16W	
R291	1-216-815-11	METAL CHIP	330	5%	1/16W	
R292	1-216-820-11	METAL CHIP	820	5%	1/16W	
R293	1-216-808-11	METAL CHIP	82	5%	1/16W	
R294	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R296	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R297	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R298	1-216-831-11	METAL CHIP	6. 8K	5%	1/16W	
R300	1-216-809-11	METAL CHIP	100	5%	1/16W	
R301	1-216-822-11	METAL CHIP	1. 2K	5%	1/16W	
R302	1-216-822-11	METAL CHIP	1. 2K	5%	1/16W	
R305	1-216-825-11	METAL CHIP	2. 2K	5%	1/16W	
R308	1-216-827-11	METAL CHIP	3. 3K	5%	1/16W	
R309	1-216-831-11	METAL CHIP	6. 8K	5%	1/16W	
R310	1-216-828-11	METAL CHIP	3. 9K	5%	1/16W	
R311	1-216-832-11	METAL CHIP	8. 2K	5%	1/16W	
R312	1-216-825-11	METAL CHIP	2. 2K	5%	1/16W	
R313	1-216-825-11	METAL CHIP	2. 2K	5%	1/16W	
R314	1-216-830-11	METAL CHIP	5. 6K	5%	1/16W	
R315	1-216-831-11	METAL CHIP	6. 8K	5%	1/16W	
R316	1-216-699-11	METAL CHIP	100K	0. 5%	1/10W	

Ref. No.	Part No.	Description				Remark
R318	1-216-809-11	METAL CHIP	100	5%	1/16W	
R319	1-216-864-11	METAL CHIP	0			
R320	1-216-864-11	METAL CHIP	0			
R322	1-216-825-11	METAL CHIP	2. 2K	5%	1/16W	
R323	1-216-825-11	METAL CHIP	2. 2K	5%	1/16W	
R324	1-216-809-11	METAL CHIP	100	5%	1/16W	
R325	1-216-829-11	METAL CHIP	4. 7K	5%	1/16W	
R326	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R330	1-216-864-11	METAL CHIP	0			
R331	1-216-823-11	METAL CHIP	1. 5K	5%	1/16W	
R332	1-216-817-11	METAL CHIP	470	5%	1/16W	
R333	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R334	1-216-829-11	METAL CHIP	4. 7K	5%	1/16W	
R335	1-216-829-11	METAL CHIP	4. 7K	5%	1/16W	
R339	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R341	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R342	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R343	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R346	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R347	1-216-824-11	METAL CHIP	1. 8K	5%	1/16W	
R348	1-216-827-11	METAL CHIP	3. 3K	5%	1/16W	
R349	1-216-809-11	METAL CHIP	100	5%	1/16W	
R350	1-216-825-11	METAL CHIP	2. 2K	5%	1/16W	
R364	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R372	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R381	1-216-864-11	METAL CHIP	0			
R390	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R391	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R392	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R393	1-216-831-11	METAL CHIP	6. 8K	5%	1/16W	
R398	1-216-864-11	METAL CHIP	0			
R404	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R405	1-216-825-11	METAL CHIP	2. 2K	5%	1/16W	
R407	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R408	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R409	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R410	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R413	1-216-830-11	METAL CHIP	5. 6K	5%	1/16W	
R415	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R416	1-216-859-11	METAL GLAZE	1. 5M	5%	1/16W	
R418	1-216-830-11	METAL CHIP	5. 6K	5%	1/16W	

Ref. No.	Part No.	Description				Remark
R420	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	
R421	1-216-864-11	METAL CHIP	0			
R423	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	
R425	1-216-864-11	METAL CHIP	0			
R426	1-216-817-11	METAL CHIP	470	5%	1/16W	
R427	1-216-807-11	METAL CHIP	68	5%	1/16W	
R428	1-216-817-11	METAL CHIP	470	5%	1/16W	
R429	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R430	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R434	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R435	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R440	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R441	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R442	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R444	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	
R446	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R447	1-216-859-11	METAL GLAZE	1.5M	5%	1/16W	
R449	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	
R452	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R453	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	
R454	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	
R456	1-216-817-11	METAL CHIP	470	5%	1/16W	
R457	1-216-807-11	METAL CHIP	68	5%	1/16W	
R458	1-216-817-11	METAL CHIP	470	5%	1/16W	
R460	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R461	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R462	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R463	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R465	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R466	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R467	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R468	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R469	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R470	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R471	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R474	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R484	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R485	1-216-817-11	METAL CHIP	470	5%	1/16W	
R486	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R489	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R490	1-216-817-11	METAL CHIP	470	5%	1/16W	
R491	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R492	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R493	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R494	1-216-814-11	METAL CHIP	270	5%	1/16W	
R495	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R496	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R497	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R498	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R499	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R600	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R601	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R603	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R604	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R605	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R608	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R621	1-216-864-11	METAL CHIP	0			
R622	1-216-864-11	METAL CHIP	0			
R630	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R631	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R636	1-216-864-11	METAL CHIP	0			
R637	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R638	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R639	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R640	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R641	1-216-817-11	METAL CHIP	470	5%	1/16W	
R642	1-216-864-11	METAL CHIP	0			

(VARIABLE RESISTOR)

Ref. No.	Part No.	Description		Remark
RV101	1-238-087-11	RES, ADJ CERMET	1K	
RV201	1-238-091-11	RES, ADJ CERMET	22K	
RV202	1-238-087-11	RES, ADJ CERMET	1K	
RV203	1-238-088-11	RES, ADJ CERMET	2.2K	
RV204	1-238-087-11	RES, ADJ CERMET	1K	
RV205	1-238-091-11	RES, ADJ CERMET	22K	
RV206	1-238-088-11	RES, ADJ CERMET	2.2K	
RV207	1-238-089-11	RES, ADJ CERMET	4.7K	
RV210	1-238-088-11	RES, ADJ CERMET	2.2K	
RV211	1-238-092-11	RES, ADJ CERMET	47K	
RV301	1-238-086-11	RES, ADJ CERMET	470	
RV400	1-238-090-11	RES, ADJ CERMET	10K	
RV401	1-238-090-11	RES, ADJ CERMET	10K	
RV402	1-238-093-11	RES, ADJ CERMET	100K	
RV403	1-238-093-11	RES, ADJ CERMET	100K	

Ref. No.	Part No.	Description	Remark
RV404	1-238-090-11	RES, ADJ CERMET 10K	
RV405	1-238-090-11	RES, ADJ CERMET 10K	
RV406	1-238-089-11	RES, ADJ CERMET 4.7K	
RV407	1-238-089-11	RES, ADJ CERMET 4.7K	
		⟨ SWITCH ⟩	
S201	1-572-275-11	SWITCH, SLIDE (IN/OUT)	
S400	1-570-850-11	SWITCH, SLIDE (HIFI SOUND ●-1-2)	
		⟨ FLEXIBLE BOARD ⟩	
W702	1-633-976-11	FP-251 FLEXIBLE BOARD	
		⟨ CRYSTAL ⟩	
X301	1-577-080-11	VIBRATOR, CRYSTAL (3.58MHz)	
**			
	A-7062-711-A	VC-95 BOARD COMPLETE ******************** (Ref. No. 6000 Series)	
	A-7068-191-A	MX-10B HIC BOARD COMPLETE ***************************	
	3-744-718-01	HOLDER (10), C	
		⟨ CAPACITOR ⟩	
C301	1-162-947-11	CERAMIC CHIP 33PF 5% 50V	
C302	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C401	1-164-634-11	CERAMIC CHIP 1uF 16V	
C402	1-164-634-11	CERAMIC CHIP 1uF 16V	
C403	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C404	1-164-634-11	CERAMIC CHIP 1uF 16V	
C406	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C407	1-164-634-11	CERAMIC CHIP 1uF 16V	
C408	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C409	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C410	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C411	1-124-566-11	ELECT 120uF 20% 6.3V	
C412	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C413	1-164-634-11	CERAMIC CHIP 1uF 16V	
C414	1-162-920-11	CERAMIC CHIP 27PF 5% 50V	
C415	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C416	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C417	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C419	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C501	1-126-205-11	ELECT CHIP 47uF 20% 6.3V	
C502	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C503	1-164-634-11	CERAMIC CHIP 1uF 16V	
C504	1-128-292-11	ELECT 220uF 20% 10V	
C506	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C507	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C508	1-135-072-21	TANTALUM CHIP 0.22uF 10% 35V	
C509	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C510	1-128-004-11	ELECT CHIP 10uF 20% 16V	
C511	1-135-180-21	TANTALUM CHIP 3.3uF 20% 6.3V	
C512	1-135-180-21	TANTALUM CHIP 3.3uF 20% 6.3V	
C513	1-135-180-21	TANTALUM CHIP 3.3uF 20% 6.3V	
C514	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C521	1-135-177-21	TANTALUM CHIP 1uF 20% 20V	
C651	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C653	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C654	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C656	1-135-177-21	TANTALUM CHIP 1uF 20% 20V	
C657	1-135-177-21	TANTALUM CHIP 1uF 20% 20V	
C659	1-135-180-21	TANTALUM CHIP 3.3uF 20% 6.3V	
C660	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C661	1-164-005-11	CERAMIC CHIP 0.47uF 25V	
C662	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C663	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C665	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C666	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C667	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C668	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C750	1-162-974-11	CERAMIC CHIP 0.01uF 50V	
C751	1-135-151-21	TANTALUM CHIP 4.7uF 20% 4V	
		⟨ CONNECTOR ⟩	
CN301	1-568-338-11	CONNECTOR, BOARD TO BOARD 24P	
CN302	1-568-331-11	CONNECTOR, BOARD TO BOARD 10P	
CN304	1-565-877-11	PIN, CONNECTOR (PC BOARD) 5P	
CN305	1-566-528-21	CONNECTOR, FPC (ZIF) 12P	
CN306	1-565-528-21	PIN, CONNECTOR (PC BOARD) 3P	
CN307	* 1-565-876-11	PIN, CONNECTOR (PC BOARD) 4P	
CN651	* 1-566-187-11	PIN, CONNECTOR (PC BOARD) 8P	

Ref. No.	Part No.	Description	Remark
CN652	1-565-527-11	PIN, CONNECTOR (PC BOARD) 2P	
CN653	1-565-877-11	PIN, CONNECTOR (PC BOARD) 5P	
CN654	1-565-874-11	PIN, CONNECTOR (PC BOARD) 2P	
CN655	* 1-565-529-21	PIN, CONNECTOR (PC BOARD) 4P	
		〈 DIODE 〉	
D501	8-719-404-46	DIODE MA110	
D502	8-719-404-46	DIODE MA110	
D503	8-719-404-46	DIODE MA110	
D504	8-719-404-46	DIODE MA110	
D651	8-719-976-90	DIODE DTZ4.3A	
		〈 FILTER 〉	
FL301	1-236-834-21	FILTER, LOW PASS	
FL302	1-415-751-21	DELAY LINE, LC (YH)	
FL303	1-415-819-11	DELAY LINE, LC	
FL401	1-415-775-21	DELAY LINE, LC	
		〈 IC 〉	
IC301	8-759-635-27	IC M62352GP	
IC401	8-752-038-XX	IC CXA1392R	
IC501	8-759-038-85	IC MC68HC11E9FU-SC400226	
IC504	8-759-635-27	IC M62352GP	
IC508	8-759-937-56	IC S-8054ALB-LM	
IC509	8-759-509-05	IC XRU4066BF	
IC510	8-759-998-96	IC LM324DR	
IC651	8-759-981-82	IC RC3414M	
IC652	8-759-998-96	IC LM324DR	
IC653	8-759-500-11	IC MM1036XFF	
IC656	8-759-998-96	IC LM324DR-E1	
		〈 COIL 〉	
L401	1-410-391-11	INDUCTOR CHIP 68uH	
L502	1-412-058-11	INDUCTOR CHIP 10uH	
L503	1-412-062-11	INDUCTOR CHIP 47uH	
		〈 TRANSISTOR 〉	
Q301	8-729-905-23	TRANSISTOR 2SA1576	
Q302	8-729-905-23	TRANSISTOR 2SA1576	
Q303	8-729-907-47	TRANSISTOR IMZ1T108	
Q402	8-729-907-47	TRANSISTOR IMZ1T108	
Q403	8-729-905-23	TRANSISTOR 2SA1576	

Ref. No.	Part No.	Description	Remark
Q404	8-729-905-35	TRANSISTOR 2SC4081	
Q504	8-729-925-39	TRANSISTOR IMH8	
Q505	8-729-925-39	TRANSISTOR IMH8	
Q506	8-729-925-77	TRANSISTOR IMH6	
Q507	8-729-420-50	TRANSISTOR UN5215	
Q508	8-729-402-78	TRANSISTOR XN6401	
Q509	8-729-925-39	TRANSISTOR IMH8	
Q510	8-729-905-35	TRANSISTOR 2SC4081	
Q513	8-729-907-47	TRANSISTOR IMZ1T108	
Q516	8-729-905-35	TRANSISTOR 2SC4081	
Q652	8-729-402-42	TRANSISTOR UN5213	
Q653	8-729-905-23	TRANSISTOR 2SA1576	
Q654	8-729-106-60	TRANSISTOR 2SB1115A	
Q655	8-729-905-35	TRANSISTOR 2SC4081	
Q656	8-729-821-88	TRANSISTOR 2SK1332-3	
		〈 RESISTOR 〉	
R301	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R302	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R303	1-216-864-11	METAL CHIP 0	
R304	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R307	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R310	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R311	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R312	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R313	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R314	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R315	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R316	1-216-842-11	METAL CHIP 56K 5% 1/16W	
R317	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R318	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R321	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R322	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R325	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R328	1-216-864-11	METAL CHIP 0	
R350	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R351	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R402	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R406	1-216-864-11	METAL CHIP 0	
R407	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R408	1-216-864-11	METAL CHIP 0	
R409	1-216-864-11	METAL CHIP 0	

Ref. No.	Part No.	Description				Remark
R411	1-216-864-11	METAL CHIP	0			
R414	1-216-864-11	METAL CHIP	0			
R415	1-216-820-11	METAL CHIP	820	5%	1/16W	
R416	1-216-815-11	METAL CHIP	330	5%	1/16W	
R417	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R418	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R419	1-216-825-11	METAL CHIP	2. 2K	5%	1/16W	
R420	1-216-825-11	METAL CHIP	2. 2K	5%	1/16W	
R421	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R427	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R428	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R429	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R432	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R437	1-216-825-11	METAL CHIP	2. 2K	5%	1/16W	
R440	1-216-864-11	METAL CHIP	0			
R501	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R502	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R503	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R504	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R505	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R508	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R509	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R510	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R513	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R514	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R515	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R517	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R518	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R521	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R522	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R523	1-216-840-11	METAL CHIP	39K	5%	1/16W	
R524	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R525	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R526	1-216-847-11	METAL CHIP	150K	5%	1/16W	
R527	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R528	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R529	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R530	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R531	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R532	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R533	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R534	1-216-837-11	METAL CHIP	22K	5%	1/16W	

Ref. No.	Part No.	Description				Remark
R535	1-216-825-11	METAL CHIP	2. 2K	5%	1/16W	
R536	1-216-823-11	METAL CHIP	1. 5K	5%	1/16W	
R537	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R546	1-216-829-11	METAL CHIP	4. 7K	5%	1/16W	
R547	1-216-829-11	METAL CHIP	4. 7K	5%	1/16W	
R560	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R561	1-216-864-11	METAL CHIP	0			
R562	1-216-833-11	METAL CHIP	10K	5%	1/16W (F501 ONLY)	
R653	1-216-827-11	METAL CHIP	3. 3K	5%	1/16W	
R654	1-216-675-11	METAL CHIP	10K	0. 5%	1/10W	
R655	1-216-675-11	METAL CHIP	10K	0. 5%	1/10W	
R656	1-216-679-11	METAL CHIP	15K	0. 5%	1/10W	
R657	1-216-679-11	METAL CHIP	15K	0. 5%	1/10W	
R658	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R666	1-216-819-11	METAL CHIP	680	5%	1/16W	
R667	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R672	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R678	1-216-789-11	METAL CHIP	2. 2	5%	1/16W	
R680	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R681	1-216-820-11	METAL CHIP	820	5%	1/16W	
R682	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R683	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R684	1-216-823-11	METAL CHIP	1. 5K	5%	1/16W	
R685	1-216-848-11	METAL CHIP	180K	5%	1/16W	
R686	1-216-824-11	METAL CHIP	1. 8K	5%	1/16W	
R687	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R688	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R689	1-216-843-11	METAL CHIP	68K	5%	1/16W	
R690	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R691	1-216-864-11	METAL CHIP	0			
R693	1-216-831-11	METAL CHIP	6. 8K	5%	1/16W	
R694	1-216-848-11	METAL CHIP	180K	5%	1/16W	
R698	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R699	1-216-827-11	METAL CHIP	3. 3K	5%	1/16W	
R700	1-216-855-11	METAL CHIP	680K	5%	1/16W	
R701	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R702	1-216-864-11	METAL CHIP	0			
R703	1-216-864-11	METAL CHIP	0			
R750	1-216-695-11	METAL CHIP	68K	0. 5%	1/10W	
R751	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R752	1-216-105-00	METAL CHIP	220K	5%	1/10W	

Ref. No.	Part No.	Description	Remark
R753	1-216-687-11	METAL CHIP 33K 0.5% 1/10W	
R754	1-216-789-11	METAL CHIP 2.2 5% 1/16W	
R755	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R800	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R801	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R802	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R803	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R804	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R805	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R806	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R807	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
		< FLEXIBLE BOARD >	
W102	1-639-048-11	FP-416 FLEXIBLE BOARD	
		< CRYSTAL >	
X501	1-578-689-21	VIBRATOR (8MHz)	

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* A-7062-124-A VF-26 BOARD, COMPLETE (TYPE 1)
****
(Ref. No. 7000 Series)

Ref. No.	Part No.	Description	Remark
	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
		< CAPACITOR >	
C901	1-126-369-11	ELECT 220uF 20% 6.3V	
C902	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C904	1-127-515-11	ELECT(SOLID) 47uF 20% 6.3V	
C905	1-163-009-11	CERAMIC CHIP 0.001uF 10% 50V	
C906	1-163-115-00	CERAMIC CHIP 82PF 5% 50V	
C907	⚠ 1-162-625-11	CERAMIC CHIP 0.0047uF 5% 50V	
C908	1-164-182-11	CERAMIC CHIP 0.0033uF 10% 50V	
C909	1-126-193-11	ELECT 1uF 20% 50V	
C911	1-131-388-00	TANTALUM 68uF 10% 6.3V	
C912	1-102-038-00	CERAMIC 0.001uF	
C913	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
C915	1-126-193-11	ELECT 1uF 20% 50V	
C916	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	
C917	1-135-166-21	TANTALUM CHIP 47uF 10% 10V	
C918	1-162-638-11	CERAMIC CHIP 1uF 16V	
C919	1-135-070-00	TANTALUM CHIP 0.1uF 10% 35V	
C920	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
		< CONNECTOR >	
CN901	* 1-566-195-11	PIN, CONNECTOR (PC BOARD) 2P	
CN902	* 1-566-195-11	PIN, CONNECTOR (PC BOARD) 2P	
CN904	1-575-570-21	CONNECTOR, FPC/FFC 6P	
		< CONPOSITION CIRCUIT BLOCK >	
CP901	1-238-119-11	RES, ADJ	
		< SOCKET >	
CRT901	1-526-978-21	SOCKET ASSY, CRT	
		< DIODE >	
D903	8-719-400-20	DIODE MA152WA-TX	
D955	8-719-404-19	DIODE LN1251C	
		< IC >	
IC901	8-759-420-01	IC AN2512S	
		< COIL >	
L901	1-410-645-31	INDUCTOR CHIP 100uH	
L902	1-410-385-11	INDUCTOR CHIP 22uH	
L903	⚠ 1-459-858-11	COIL, FERRITE (HLC)	
		< TRANSISTOR >	
Q902	⚠ 8-729-402-31	TRANSISTOR 2SD1819A-Q-TX	
Q903	8-729-106-68	TRANSISTOR 2SD1615A	
Q904	8-729-216-31	TRANSISTOR 2SA1163G	
		< RESISTOR >	
R902	⚠ 1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R903	1-216-041-00	METAL CHIP 470 5% 1/10W	
R904	⚠ 1-216-073-00	METAL CHIP 10K 5% 1/10W	
R906	⚠ 1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R907	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R908	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R911	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R914	1-216-133-00	METAL CHIP 3.3M 5% 1/10W	
R915	1-216-133-00	METAL CHIP 3.3M 5% 1/10W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

VF-26

Ref. No.	Part No.	Description				Remark
R916	1-216-125-00	METAL CHIP	1.5M	5%	1/10W	
R917	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R919	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R920	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R921	1-216-013-00	METAL CHIP	33	5%	1/10W	
R922	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	
R923	1-216-025-00	METAL CHIP	100	5%	1/10W	
R924	1-216-306-11	METAL CHIP	3.9	5%	1/10W	
R925	1-216-336-11	METAL CHIP	47K	1%	1/10W	
R926	1-218-163-11	METAL CHIP	120K	1%	1/10W	
R928	1-216-870-11	METAL CHIP	180K	1%	1/10W	
R929	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R930	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R931	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R950	1-216-041-00	METAL CHIP	470	5%	1/10W	
R951	1-216-295-00	METAL CHIP	0	5%	1/10W	
		〈 VARIABLE RESISTOR 〉				
RV901	1-238-647-11	RES, ADJ, METAL GLAZE 4.7M				
		〈 TRANS 〉				
T901	⚠ 1-439-428-11	TRANSFORMER ASSY, FLYBACK				
		〈 THERMISTOR 〉				
TH901	1-807-938-11	THERMISTOR				

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A-7062-124-A VF-26 BOARD, COMPLETE (TYPE 2)
****
(Ref. No. 8000 Series)

	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
		〈 CAPACITOR 〉			
C901	1-126-369-11	ELECT	220uF	20%	6.3V
C902	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C904	1-127-515-11	ELECT(SOLID)	47uF	20%	6.3V
C905	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C906	1-163-115-00	CERAMIC CHIP	82PF	5%	50V
C907	⚠ 1-162-625-11	CERAMIC CHIP	0.0047uF	5%	50V
C908	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V

Ref. No.	Part No.	Description				Remark
C909	1-126-193-11	ELECT	1uF	20%	50V	
C911	1-131-388-00	TANTALUM	68uF	10%	6.3V	
C912	1-102-038-00	CERAMIC	0.001uF			
C913	1-163-033-00	CERAMIC CHIP	0.022uF		50V	
C915	1-126-193-11	ELECT	1uF	20%	50V	
C916	1-163-145-00	CERAMIC CHIP	0.0015uF	5%	50V	
C917	1-135-162-21	TANTALUM CHIP	33uF	20%	6.3V	
C918	1-162-638-11	CERAMIC CHIP	1uF		16V	
C919	1-135-070-00	TANTALUM CHIP	0.1uF	10%	35V	
C920	1-164-232-11	CERAMIC CHIP	0.01uF		50V	
		〈 CONNECTOR 〉				
CN901	* 1-566-195-11	PIN, CONNECTOR (PC BOARD) 2P				
CN902	* 1-566-195-11	PIN, CONNECTOR (PC BOARD) 2P				
CN904	1-575-570-21	CONNECTOR, FPC/FFC 6P				
		〈 CONPOSITION CIRCUIT BLOCK 〉				
CP901	1-238-119-11	RES, ADJ				
		〈 SOCKET 〉				
CRT901	1-526-978-21	SOCKET ASSY, CRT				
		〈 DIODE 〉				
D903	8-719-400-20	DIODE	MA152WA-TX			
D955	8-719-404-19	DIODE	LN1251C			
		〈 IC 〉				
IC901	8-759-511-01	IC	BA7147F-T1			
IC901	8-759-514-92	IC	XRA7147F-E1			
		〈 COIL 〉				
L901	1-410-645-31	INDUCTOR CHIP	100uH			
L902	1-410-385-11	INDUCTOR CHIP	22uH			
L903	⚠ 1-459-858-11	COIL, FERRITE (HLC)				
		〈 TRANSISTOR 〉				
Q902	⚠ 8-729-402-31	TRANSISTOR	2SD1819A-Q-TX			
Q903	8-729-106-68	TRANSISTOR	2SD1615A			
Q904	8-729-216-31	TRANSISTOR	2SA1163G			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

(RESISTOR)

Ref. No.	Part No.	Description	Remark
R903	1-216-041-00	METAL CHIP 470 5% 1/10W	
R904	⚠ 1-216-073-00	METAL CHIP 10K 5% 1/10W	
R906	⚠ 1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R907	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R908	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R911	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R914	1-216-133-00	METAL CHIP 3.3M 5% 1/10W	
R915	1-216-133-00	METAL CHIP 3.3M 5% 1/10W	
R916	1-216-125-00	METAL CHIP 1.5M 5% 1/10W	
R917	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R919	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R920	1-216-111-00	METAL CHIP 390K 5% 1/10W	
R921	1-216-011-00	METAL CHIP 27 5% 1/10W	
R922	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R923	1-216-025-00	METAL CHIP 100 5% 1/10W	
R924	1-216-306-11	METAL CHIP 3.9 5% 1/10W	
R925	1-216-334-11	METAL GLAZE 22K 1% 1/10W	
R926	1-216-091-00	METAL CHIP 56K 5% 1/10W	
R928	1-216-870-11	METAL CHIP 180K 1% 1/10W	
R929	⚠ 1-216-073-00	METAL CHIP 10K 5% 1/10W	
R930	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R950	1-216-041-00	METAL CHIP 470 5% 1/10W	
R951	1-216-295-00	METAL CHIP 0 5% 1/10W	

(VARIABLE RESISTOR)

Ref. No.	Part No.	Description	Remark
RV901	1-238-647-11	RES, ADJ, METAL GLAZE 4.7M	

(TRANS)

Ref. No.	Part No.	Description	Remark
T901	⚠ 1-439-428-11	TRANSFORMER ASSY, FLYBACK	

(THERMISTOR)

Ref. No.	Part No.	Description	Remark
TH901	1-807-938-11	THERMISTOR	

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* A-7062-125-A VF-27 BOARD, COMPLETE

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(Ref. No. 9000 Series)

(CAPACITOR)

Ref. No.	Part No.	Description	Remark
C901	1-124-442-00	ELECT 330uF 20% 6.3V	
C903	1-163-077-00	CERAMIC CHIP 0.1uF 10% 25V	
C904	1-126-160-11	ELECT 1uF 20% 50V	
C905	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	
C906	1-131-381-00	TANTALUM 47uF 10% 10V	
C907	1-162-638-11	CERAMIC CHIP 1uF 16V	
C908	1-136-165-00	FILM 0.1uF 5% 50V	
C909	1-163-109-00	CERAMIC CHIP 47PF 5% 50V	
C910	1-124-587-11	ELECT 220uF 20% 6.3V	
C911	1-163-141-00	CERAMIC CHIP 0.001uF 5% 50V	
C912	⚠ 1-162-625-11	CERAMIC CHIP 0.0047uF 5% 50V	
C913	⚠ 1-162-625-11	CERAMIC CHIP 0.0047uF 5% 50V	
C914	⚠ 1-163-209-00	CERAMIC CHIP 0.0015uF 5% 50V	
C915	1-126-090-11	ELECT 82uF 20% 10V	
C916	1-126-163-11	ELECT 4.7uF 20% 50V	
C918	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	
C919	1-102-038-00	CERAMIC 0.001uF	

(CONNECTOR)

Ref. No.	Part No.	Description	Remark
CN902	* 1-566-195-11	PIN, CONNECTOR (PC BOARD) 2P	
CN903	* 1-566-195-11	PIN, CONNECTOR (PC BOARD) 2P	
CN904	1-575-570-21	CONNECTOR, FPC/FFC 6P	

(DIODE)

Ref. No.	Part No.	Description	Remark
D903	8-719-400-20	DIODE MA152WA-TX	
D955	8-719-404-19	DIODE LN1251C-TL	

(IC)

Ref. No.	Part No.	Description	Remark
IC901	8-759-420-01	IC AN2512S-T1	

(COIL)

Ref. No.	Part No.	Description	Remark
L901	1-410-831-21	INDUCTOR 82uH	
L902	1-408-977-21	INDUCTOR 39uH	
L903	⚠ 1-459-858-11	COIL, FERRITE (HLC)	

(TRANSISTOR)

Ref. No.	Part No.	Description	Remark
Q902	8-729-100-66	TRANSISTOR 2SC1623	
Q903	8-729-216-31	TRANSISTOR 2SA1163G	
Q904	8-729-100-66	TRANSISTOR 2SC1623	
Q905	8-729-106-68	TRANSISTOR 2SD1615A	

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Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
		〈 RESISTOR 〉	
R901	⚠ 1-216-073-00	METAL CHIP 10K 5% 1/10W	
R903	1-216-041-00	METAL CHIP 470 5% 1/10W	
R904	⚠ 1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R905	1-216-007-00	METAL CHIP 18 5% 1/10W	
R906	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R908	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R909	1-216-113-00	METAL CHIP 470K 5% 1/10W	
R910	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R911	1-216-013-00	METAL CHIP 33 5% 1/10W	
R912	1-216-691-11	METAL CHIP 47K 0.5% 1/10W	
R913	1-218-163-11	METAL CHIP 120K 1% 1/10W	
R914	1-216-025-00	METAL CHIP 100 5% 1/10W	
R915	1-216-306-11	METAL CHIP 3.9 5% 1/10W	
R917	1-216-045-00	METAL CHIP 680 5% 1/10W	
R918	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R919	1-216-748-11	METAL CHIP 39K 5% 1/10W	
R920	1-216-748-11	METAL CHIP 39K 5% 1/10W	
R921	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R922	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R923	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R924	1-216-131-11	METAL CHIP 2.7M 5% 1/10W	
R925	1-216-131-11	METAL CHIP 2.7M 5% 1/10W	
R926	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R928	⚠ 1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R933	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R950	1-216-041-00	METAL CHIP 470 5% 1/10W	
		〈 VARIABLE RESISTOR 〉	
RV901	1-230-873-11	RES, ADJ, METAL 47K	
RV902	1-230-866-11	RES, ADJ, METAL 470	
RV903	1-230-869-11	RES, ADJ, METAL 4.7K	
RV904	1-228-762-00	RES, ADJ, METAL GLAZE 1M	
		〈 TRANS 〉	
T901	⚠ 1-439-431-11	TRANSFORMER ASSY, FLYBACK	
		〈 THERMISTOR 〉	
TH901	1-807-938-11	THERMISTOR	

Ref. No.	Part No.	Description	Remark
		〈 SOCKET 〉	
W901	1-540-019-21	SOCKET ASSY, CRT	

****

* A-7071-399-A VK-16 BOARD, COMPLETE
****
(Ref. No. 4000 Series)

Ref. No.	Part No.	Description	Remark
		〈 CONNECTOR 〉	
CN501	1-566-530-11	CONNECTOR, FPC (ZIF) 14P	
		〈 DIODE 〉	
D508	8-719-404-46	DIODE MA110	
D509	8-719-404-46	DIODE MA110	
D513	8-719-404-46	DIODE MA110	
D529	8-719-404-46	DIODE MA110	
		〈 IC 〉	
IC960	8-749-921-76	IC GP1U56 (ON FP-413 FLEXIBLE)	
		〈 RESISTOR 〉	
R501	1-216-029-00	METAL CHIP 150 5% 1/10W	
		〈 SWITCH 〉	
S500	1-571-684-11	SWITCH, TACTIL (REW◄◄)	
S503	1-571-684-11	SWITCH, TACTIL (FF►►)	
S504	1-571-684-11	SWITCH, TACTIL (STOP □)	
S505	1-571-684-11	SWITCH, TACTIL (PAUSE II)	
S506	1-571-684-11	SWITCH, TACTIL (TIME/NEXT)	
S507	1-571-684-11	SWITCH, TACTIL (DATA (+))	
S508	1-571-684-11	SWITCH, TACTIL (DATA SCREEN)	
S509	1-571-684-11	SWITCH, TACTIL (AGE)	
S510	1-572-284-11	SWITCH, SLIDE (● REC)	
S511	1-570-870-11	SWITCH, SLIDE (SP/LP)	
S512	1-571-684-11	SWITCH, TACTIL (FRAME >/II►)	
S513	1-571-684-11	SWITCH, TACTIL (SLOW I►)	
S514	1-572-283-11	SWITCH, SLIDE (POWER CAM/OFF VTR)	
S515	1-570-870-11	SWITCH, SLIDE (BEEP ON/OFF)	
S520	1-571-684-11	SWITCH, TACTIL (PB ▷)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
		(FLEXIBLE BOARD)	
W550	1-639-045-11	FP-413 FLEXIBLE BOARD	
W551	1-633-981-11	FP-292 FLEXIBLE BOARD	

****

MISCELLANEOUS
****

Ref. No.	Part No.	Description	Remark
L901 ⚠	1-451-310-21	DEFLECTION YOKE (B/W) (ON VF-26 BOARD)	
V901 ⚠	1-546-085-11	CATHODE-RAY TUBE, B/W (ON VF-26 BOARD)	
V901 ⚠	1-452-482-11	CRT ASSY (M91JYZ60WB) (ON VF-27 BOARD)	
	1-547-481-11	LENS, ZOOM (VCL-8510XA) (LENS UNIT)	
	* 8-814-268-00	MICROPHONE C-2033 SET (MIC UNIT)	
	1-466-230-21	CONVERTER UNIT, (D/D) (CAM DC-DC CONVERTER)	
S901	1-572-692-11	SWITCH, PUSH (ZOOM SWITCH UNIT)	
ND901	1-809-023-11	DISPLAY PANEL, LIQUID CRYSTAL (LCD ASSY)	
BZ901	1-529-096-11	BUZZER, PIEZOELECTRIC	
	1-547-357-12	FILTER BLOCK, OPTICAL (ON CCD IMAGER)	
	8-752-604-98	IC ICX026CK-2 (CCD IMAGER)	
	8-741-101-08	IC SBX1509-01 (RP-77 HIC BOARD)	
	1-808-505-12	SENSOR (DEW SENSOR)	
	1-633-889-11	PC BOARD, FP-246 FLEXIBLE BOARD	
	1-633-891-11	PC BOARD, FP-247 FLEXIBLE BOARD	
	1-634-011-11	PC BOARD, FP-264 FLEXIBLE BOARD	
	1-569-347-11	CONNECTOR, FPC(TRANSLATION)13P	
M901	A-7048-356-A	DRUM ASSY (DGU-56A-R) (DRUM)	
M902	8-835-331-01	MOTOR, DC U-22A (CAPSTAN)	
M903	A-7040-208-A	MOTOR ASSY, THREADING (LOADING)	
M904	3-708-245-01	METER, IG (IRIS)	
M905	3-708-251-01	MOTOR ASSY, PZ (ZOOM)	
M906	3-708-247-01	MOTOR ASSY, AF (FOCUS)	

****

ACCESSORIES & PACKING MATERIALS
****

Ref. No.	Part No.	Description	Remark
	1-465-395-41	COMMANDER, REMOTE (RMT-502)	
	1-575-334-11	CORD, CONNECTION	
	* 3-340-514-01	BAG, PROTECTION	
	3-753-141-21	MANUAL, INSTRUCTION (ENGLISH) (CCD-F501)	
	3-753-141-31	MANUAL, INSTRUCTION (FRENCH) (CCD-F501; Canadian MODEL)	
	3-753-484-71	MANUAL, INSTRUCTION (ENGLISH, SPANISH) (CCD-F555)	
	3-753-484-81	MANUAL, INSTRUCTION (CHINESE) (CCD-F555)	
	* 3-764-631-12	INSTRUCTION, DEW CONDENSATION (CCD-F555)	
	* 3-795-581-21	SAFEGUARD (SONY), IMPORTANT (CCD-F501; US MODEL)	
	* 3-942-304-01	CUSHION (UPPER)	
	* 3-942-305-01	CUSHION (LOWER)	

****

ACCESSORIES & PACKING MATERIALS (KIT)
****

Ref. No.	Part No.	Description	Remark
	* 1-571-163-02	SWITCH, ANTENNA CHANGE (WITH CABLE) (CCD-F555)	
	* 3-741-532-01	CUSHION, ACC	
	3-941-737-01	BELT, SHOULDER	
	* 3-942-284-01	INDIVIDUAL CARTON (CCD-F501)	
	* 3-942-284-51	INDIVIDUAL CARTON (CCD-F555)	
	A-6767-816-A	RFU ADAPTOR (RFU-89NA) (CCD-F555)	
	A-6768-253-A	RFU ADAPTOR (RFU-90UC) (CCD-F501)	
	** AC-V35	AC POWER ADAPTOR (CCD-F501)	
	** AC-V65	AC POWER ADAPTOR (CCD-F555)	
	*** NP-66H	BATTERY PACK	

Note:
** MARK PARTS IS AVAILABLE FOR REPAIR SERVICE.
*** MARK PARTS IS AVAILABLE AS AN OPTIONAL ACCESSORY.

****

HARDWARE LIST
****

Ref. No.	Part No.	Description	Remark
#1	7-671-155-01	STEEL BALL 3.0	
#2	7-627-553-37	SCREW (M2X3), SPECIAL HEAD	
#3	7-627-553-68	SCREW, PRECISION +P 2X6 TYPE3	
#4	7-627-555-88	SCREW (M1.4X1.8)	
#5	7-621-281-15	SCREW +P 2X2	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

SECTION 7
SERVICE MODE

☆ This unit adopts the camera adjustment and the EVR (Electronic Variable resistor) with the SENSER LANC system.

7-1. SENSER LANC

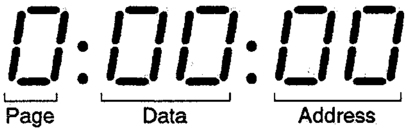
SENSER LANC is the LANC format to adjust the EVR (Electronic Variable resistor) of Video 8 Handycam and to perform tests by using the LANC (control L). This word stands for the same as the SERVICE LANC formerly used, however, the unified word "SENSER LANC" will be used with this substantial functions.

7-1-1. How to Use RM-95 Jig (Adjustment remote controller)

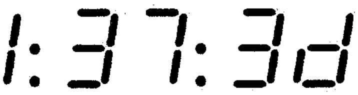
RM-95 jig is used to operate the SENSER LANC. HOLD switch of this jig is remodelled for service to get the SENSER LANC mode. Replacing microcomputer in RM-95 is required for the old-model RM-95 jig, which has no page display function.

Old model	μPD7503G-A71-12 μPD7503G-C23-12	8-759-142-56 8-759-146-77	Page is not displayed (Replacing microcomputer is required)
New model	μPD7503G-C56-12	8-759-148-35	Page is displayed

LCD display of RM-95



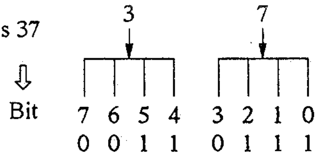
⇨ Example



This means that the page 1 and address 3D is data of 37.

- Reference between Data and Bit

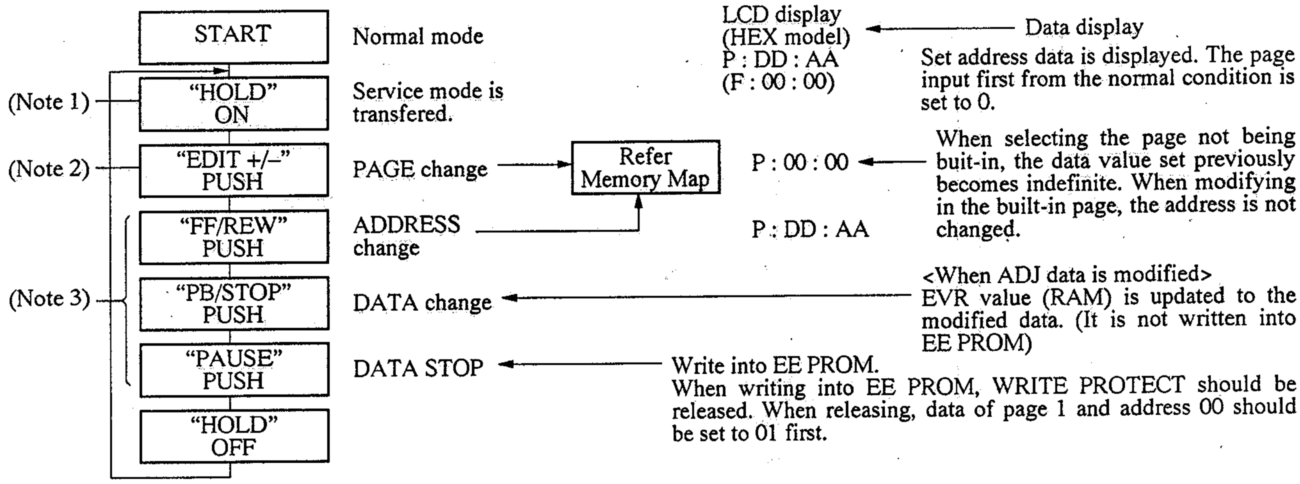
When the data is 37



Page	Address	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
1	3D	MP-HG		ME/MP	REC PROOF	V MUTE	A MUTE	JOG	VA PB MODE
		0	0	1	1	0	1	1	1

The data in the above list means as follows:
ME/MP SW ············ ON
REC PROOF SW ····· ON
AUDIO MUTE········ ON
JOG······················ ON
VA PB MODE ········ ON

7-1-2. Transfer method of the service mode with RM-95


START
Normal mode
(Note 1)
"HOLD" ON
Service mode is transfered.
(Note 2)
"EDIT +/–" PUSH
PAGE change
Refer Memory Map
"FF/REW" PUSH
ADDRESS change
(Note 3)
"PB/STOP" PUSH
DATA change
"PAUSE" PUSH
DATA STOP
"HOLD" OFF
LCD display
(HEX model)
P : DD : AA
(F : 00 : 00)
Data display
P : 00 : 00
P : DD : AA

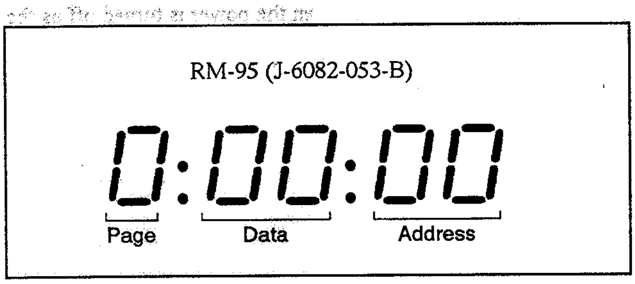
Set address data is displayed. The page input first from the normal condition is set to 0.

When selecting the page not being buit-in, the data value set previously becomes indefinite. When modifying in the built-in page, the address is not changed.

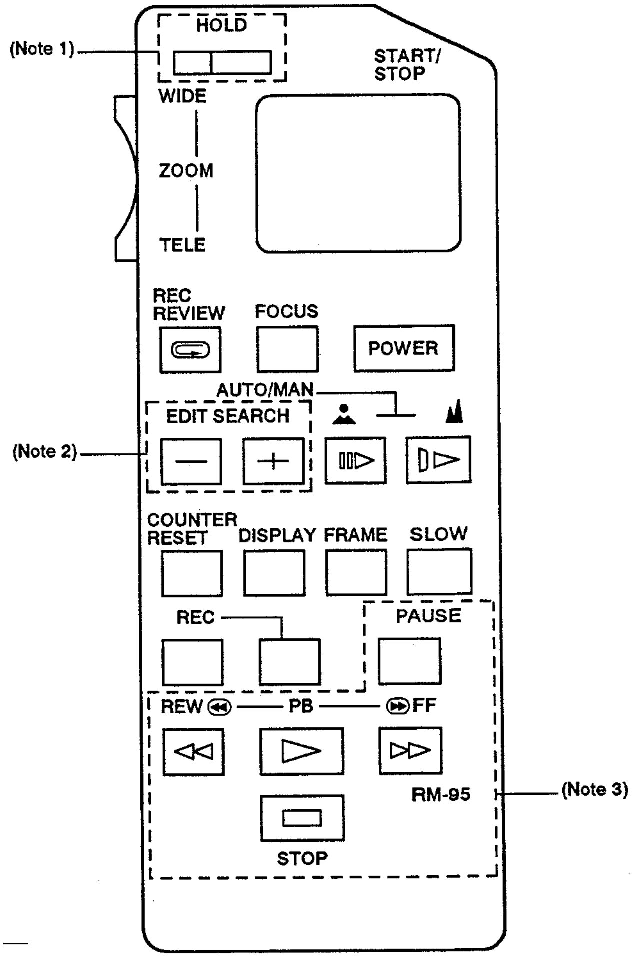
<When ADJ data is modified>
EVR value (RAM) is updated to the modified data. (It is not written into EE PROM)

Write into EE PROM.
When writing into EE PROM, WRITE PROTECT should be released. When releasing, data of page 1 and address 00 should be set to 01 first.

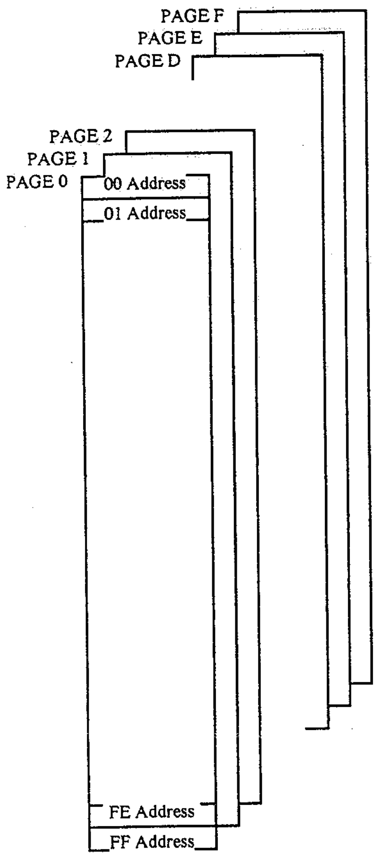
Command name	Command function	Function Button with RM-95
Page Up	Page +1	Edit Search +
Page Down	Page –1	Edit Search –
Direct Page Set	Set to direct page	Event Clear
Address Up	Address +1	Fast Forward
Address Down	Address –1	Rewind
Data Up	Data +1	Play Back
Data Down	Data –1	Stop
Store	Write data into EEPROM. RAM	Pause


RM-95 (J-6082-053-B)
0:00:00
Page
Data
Address

RM-95 (J-6082-053-B)


(Note 1)
HOLD
START/ STOP
WIDE
ZOOM
TELE
REC REVIEW
FOCUS
POWER
AUTO/MAN
EDIT SEARCH
(Note 2)
COUNTER RESET
DISPLAY
FRAME
SLOW
REC
PAUSE
REW
PB
FF
RM-95
(Note 3)
STOP

7-1-3. SENSER LANC Memory Map



PAGE	Page allocation	Description
0	Service	
1	Mode Control RAM	RAM and I/O interface data memory area required for operating the mode controller. Data is not held when the power is turned off because this area is not ROM.
2	Mode Control I/O	
3	Mechanical Control RAM	RAM and I/O memory area of the mechanical controller.
4	Mode Control I/O	
5	Camera microcompuler RAM	RAM and I/O memory area of the camera micro controller.
6	Camera microcompuler I/O	
7	Spare	
8	Spare	
9	Spare	
A	Spare	
B	Spare	
C	Spare	
D	VTR EE-PROM	ROM memory area of the VTR part. Data of this area is held by EE-PROM when the power is tuned off. Releasing protect is required for changing data.
E	Camera EE-PROM2	ROM memory area of the camera part. Data of this area is held by EE•P•ROM when the power is tuned off.
F	Camera EE-PROM1	

Note) There are 16 types of page from 0 to F. The allocation of page is as the above list. Only the memory of page D, E and F is not erased when the power is turned off as the EVR (Electronic Variable resistor).

7-1-4 Types of Self-diagnostic Feature

This unit has ADJUST mode and TEST mode as follows:

MODE		Contents
ADJUST	Camera adjustment	Refer to Camera Adjustment
	Switching position adjustment	Refer to each adjustment page
	Battery DOWN adjustment	
TEST	Pass adjustment track shift	When adjusting tape pass, set this mode and shift the tracking.
	Emergency STOP inhibition	Detection of emergency is inhibited. This allows the following items. • Power is not turned off when the battery is ended. • SP/LP is not automatically distinguished. • Emergency is not detected except for TOP/END detection of the TAPE.
	Read of emergency code	The following functions are added to the emergency display function currently in use. ① The lithium battery is not required because to memorize into EE-PROM is allowed. ② The first emergency and the last emergency are memorized. ③ The mode when the emergency is generated is memorized, in addition to the emergency contents.
	Motor single check	Rotating in forward direction, reverse direction, stopping of each motor can be separately controlled. • Drum motor • Capstan motor • Loading motor
	Function switch check	The acceptance of the function switch of the unit can be confirmed by designating an address. On the contrary, RM-95 can command the substitution for the function switch of the unit.
	Mechanical switch check	The contents of the mechanical switch and the mode switch can be confirmed.
	Sensor check	The following sensor is input by performing A/D converting, and the A/D converted value can be confirmed. TOP sensor, End sensor, S REEL FG, T REEL FG, Thermistor for SWP correction, DEW sensor.
	Reception contents check of wireless remote control	The received code contents of the remote control code can be confirmed.

7-1-5. How to use practically

How to use:

How to set the adjustment mode and the TEST mode

Set RM-95 to the service mode. (HOLD SW "ON")

How to change and write data

Press the PAUSE button of RM-95. Pressing PAUSE button is not required for some RAM and I/O area.

Change and write data of EE-PROM

Removing PROTECT is required. The PROTECT is removed by setting as follows:

PAGE 1	Address 00	Data 01

But CAMERA system don't need release, because don't set PROTECT.

How to release each mode

Releasing from EE-PROM area	Be sure to return the data of PAGE 1 address 00 to 00 from 01, and then turn off the service mode of RM-95.
Releasing from RAM and I/O area	Turn off the service mode or turn off the power, because hoding of data is not required.

- In order to perform the pass track shift ········· Refer to page 283.
- In order to inhibit the emergency detection ········· Refer to the list in page 288.
- In order to check the emergency code ········· Refer to page 289.
- In order to operate the motor singly ········· Refer to page 293.
- In order to check the function switch ········· Refer to page 291.
- In order to check the mechanical switch ········· Refer to page 290.
- In order to read the A/D converted value ········· Refer to page 293.
- In order to check the reception contents of the wireless remote control····· Refer to page 293.

SECTION 8
CAMERA ADJUSTMENTS

During the adjustment, see the arrangement diagram for adjustment parts from page 278.

8-1. PRE-ADJUSTMENT PREPARATIONS (CAMERA BLOCK)

8-1-1. List of Servicing Jigs

- Oscilloscope
- Adjusting screwdriver
- Regulated power supply (2 units)
- Color monitor
- Vectorscope
- Stop watch
- Digital voltmeter
- L lench (1.25 mm)

Ref. No.	Part Name	Part No.	Use
J-1	Filter (C14) for color temperature correction	J-6080-058-A	Auto white balance adjustment/confirmation Outdoor white balance adjustment/confirmation
J-2	ND filter 1.0	J-6080-808-A	Max. gain adjustment (two filters used)
	ND filter 0.4	J-6080-806-A	Iris adjustment, shutter in/out adjustment
	ND filter 0.3	J-6080-818-A	Max. gain adjustment (two used)
	ND filter 0.1	J-6080-807-A	Iris adjustment, shutter in/out adjustment, Max. gain adjustment
J-3	Pattern box PTB-500	J-6029-140-A	
J-4	Pattern box color chart	J-6020-250-A	
J-5	Siemens star chart Transmission type simens-star chart	J-6080-875-A J-6080-923-A	Either of the siemens-star charts which appear during adjustment may be used.
J-6	AF microcomputer data reading jig*[1]	J-6082-025-A	
J-7	Adjustment remote controller*[2]	J-6082-053-B	
J-8	Extension cord (2P 1.5 mm pitch)	J-6082-873-A	To connect FU-101 board W991 and DC-DC converter
	Extension cord (5P 1.5 mm pitch)	J-6082-043-A	To connect VC-95 board CN304 and DC-DC converter
	Extension cord (4P 1.5 mm pitch)	J-6082-042-A	To connect VC-95 board CN307 and VA-68 board W701
J-9	Extension cord (20P)	J-6082-063-B	To connect VA-68 board CN703 and CT-39 board CN705
J-10	Extension cord (12P 1.0 mm pitch)	J-6082-056-A	To connect VC-95 board CN305 and VA-68 board W702
J-11	CPA connector jig	J-6082-109-A	Check point array on the VC-95 board.

*1 Change the value of R1 from 10kΩ to 100kΩ in the AF microcomputer data reading jig. (If the value is kept to 10k Ω , the adjustment data can not change because of the difference of the impedance.)
When adjustment the old-model Handy Cam, 100kΩ is allowed to perform the adustment.

*2 Microcomputer IC in the adjustment Remote controller except for μPD7503G-C56-12 (8-759-148-35) does not allow the page selecting. Replace the microcomputer in such a case.

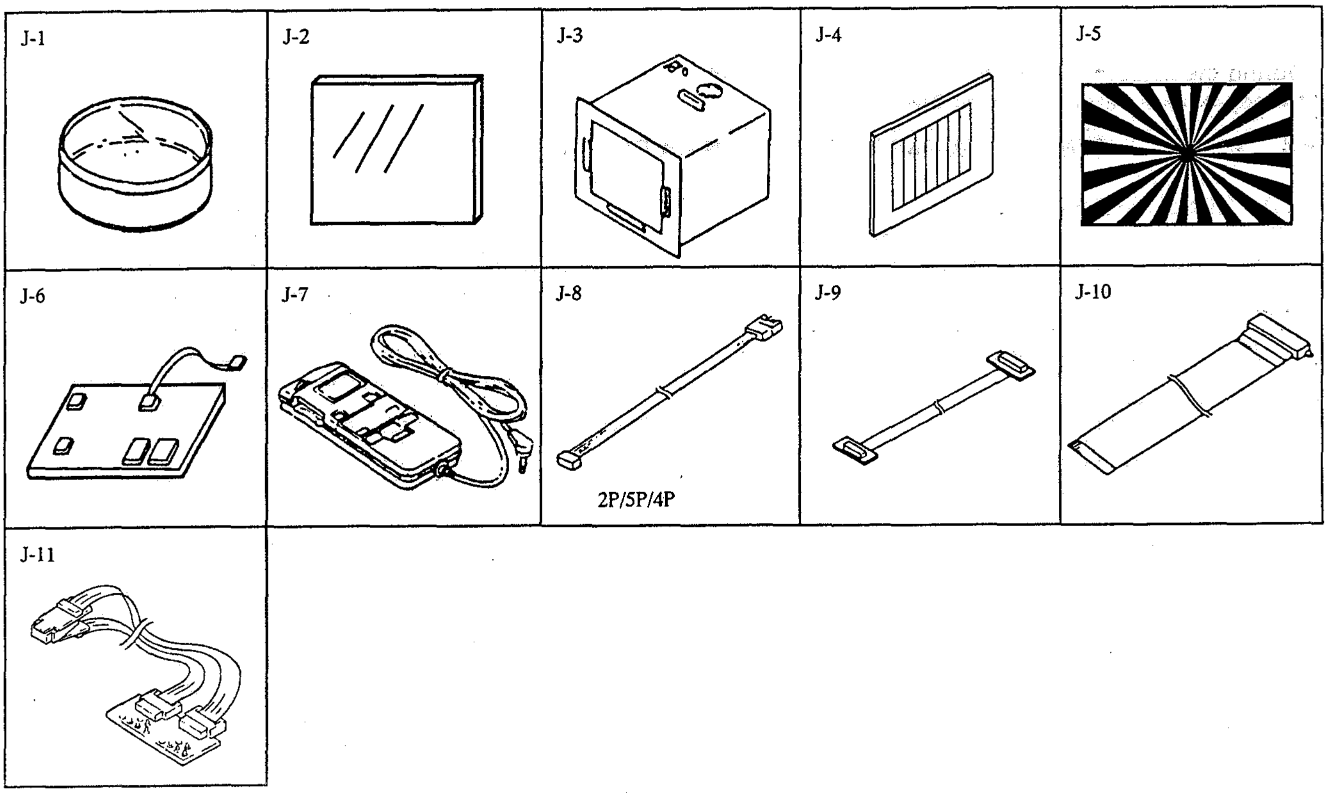
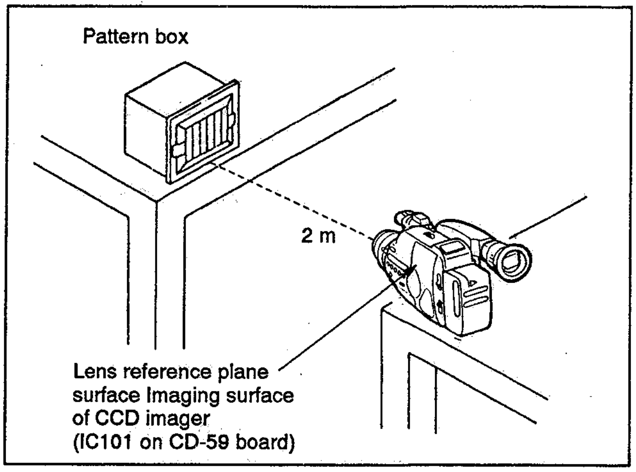

J-1
J-2
J-3
J-4
J-5
J-6
J-7
J-8
2P/5P/4P
J-9
J-10
J-11

Fig. 8-1.

8-1-2. Preparations

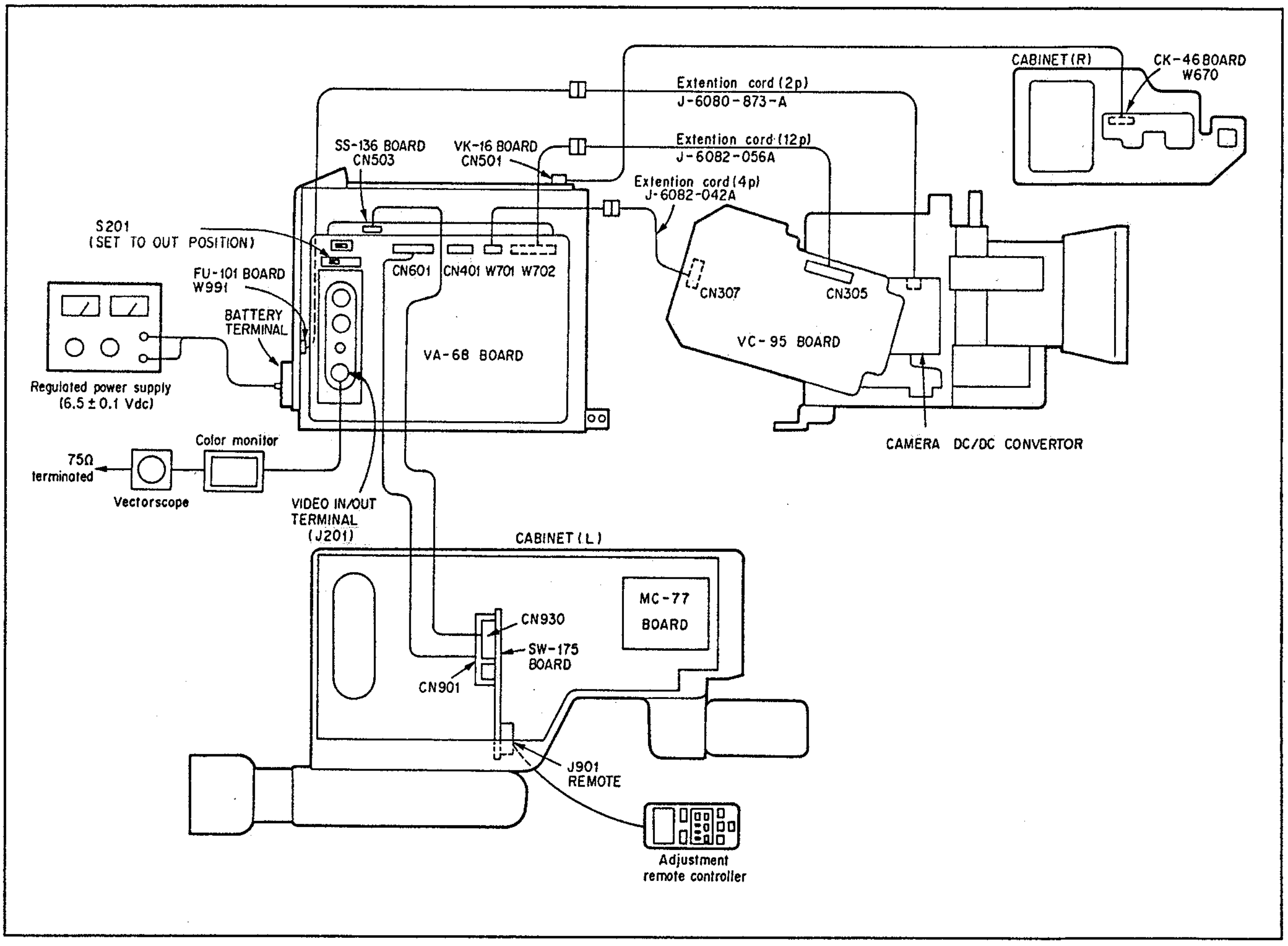
Note: Refer to "2. DISASSEMBLY" for details on removal of the cabinet and various boards.

1) Connect the various devices for adjustment as shown in Fig. 8-3.
(Except for "Prime Oscillation Adjustment", the adjustment can be done with camera and video blocks connected.)



Pattern box
2 m
Lens reference plane surface Imaging surface of CCD imager (IC101 on CD-59 board)

Fig. 8-2.



CABINET(R)
CK-46 BOARD W670
Extention cord (2p) J-6080-873-A
Extention cord (12p) J-6082-056A
Extention cord (4p) J-6082-042A
SS-136 BOARD CN503
VK-16 BOARD CN501
S201 (SET TO OUT POSITION)
FU-101 BOARD W991
BATTERY TERMINAL
CN601
CN401 W701 W702
VA-68 BOARD
CN307
CN305
VC-95 BOARD
CAMERA DC/DC CONVERTOR
Regulated power supply (6.5 ± 0.1 Vdc)
Color monitor
75Ω terminated
Vectorscope
VIDEO IN/OUT TERMINAL (J201)
CABINET (L)
MC-77 BOARD
CN930
SW-175 BOARD
CN901
J901 REMOTE
Adjustment remote controller

Fig. 8-3.

8-1-3. Precautions

1. Setting of switches

Unless otherwise specified, the switches are set to the following positions and adjustment is made without a cassette inserted.

1. Camera/video power switch (S514 on VK-16 board) ......CAMERA
2. Standby switch (S900 on SW-175 board)......STANDBY
3. Auto-lock switch (S670 on CK-46 board)......OFF
4. White balance button (S676 on CK-46 board) ...... ☼ (indoors white balance mode)
5. Shutter speed button (S671 on CK-46 board) ......NORMAL (1/60)
6. Input/output select switch (S201 on VA-68 board) ......OUT
7. Back-light button (S675 on CK-46 board)......OFF
8. Program AE button (S672 on CK-46 board) ......NORMAL (NO indications on LCD)

2. Adjustment order

As a rule, the adjustments are performed in the listed order.

3. Subjects

1) Color bar chart (standard picture frame)
   When performing adjustment using the color bar chart, adjust the picture frame shown in Fig. 8-4. (standard picture frame).
2) White pattern (standard picture frame)
   Remove the color bar chart from the pattern box and use the zoom lever so that the white pattern has the same size and is in the same position as the color bar chart (standard picture frame).
3) All white pattern
   Remove the color bar chart from the pattern box and set the zoom lever fully to the TELE (85 mm) side.
4) Siemens star
   Adjust the direction of the camera so that center of the Siemens star is lined up with the center of the monitor screen on the monitor TV screen.

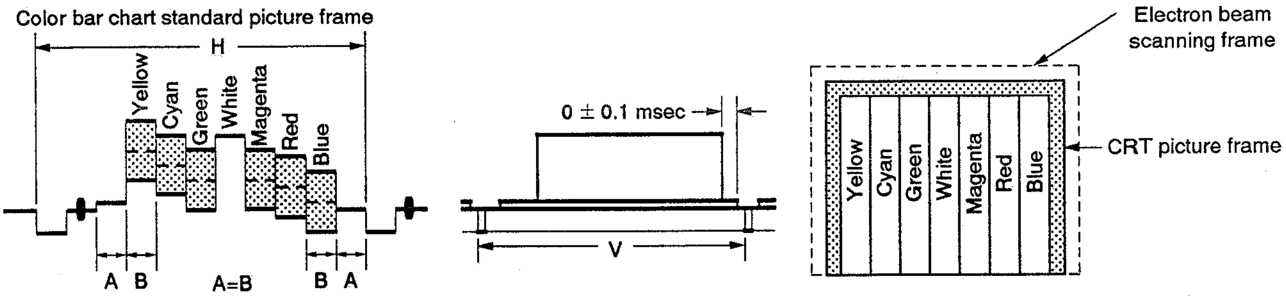

Color bar chart standard picture frame
H
Yellow
Cyan
Green
White
Magenta
Red
Blue
A
B
A=B
B
A
0 ± 0.1 msec
V
Electron beam scanning frame
CRT picture frame
Yellow
Cyan
Green
White
Magenta
Red
Blue

Fig. a (Video input/output terminal output waveform)

Fig. b (Picture on monitor TV)

Adjust the zooming and direction of the camera to obtain the output waveform shown in Fig. a and the monitor TV picture shown in Fig. b.

Fig. 8-4.

8-1-4. Adjustment Remote Controller

An EVR (electronic variable resistor) is used as the adjustment element for the camera block, replacing the conventional semi-fixed resistor. The EVR is controlled by the camera control microcomputer (IC501 on VC-95 board). This microcomputer reads the data written in the nonvolatile memory of the microcomputer and sends it to the EVR. The EVR D-A converts this data (8 bits for each adjustment point) and creates the adjustment voltage.

Thus, it is necessary to change the adjustment data contained in the nonvolatile memory when adjusting the camera block, and the adjustment memory is used for this purpose.

The adjustment remote controller performs bidirectional communications with the camera control microcomputer using the remote control signal lines (LANC). Adjustment page, adjustment addresses and adjustment data increment/decrement commands are sent to the camera control microcomputer from the adjustment remote controller. Adjustment page, adjustment addresses and adjustment data are sent from the camera control microcomputer to the adjustment remote controller.

Note: The microcomputer IC in the adjustment remote controller except for new microcomputer (UPD7503G-C56-12) dose not allow the adjustment page selecting. Rplace with the new microcomputer (8-759-148-35) in such a case.

1. Use of adjustment remote controller

1) Connect the adjustment remote controller to the remote terminal (J901 on SW-175 board).
2) Turn on the power of the main unit.
3) Set the HOLD switch of the adjustment remote controller to the HOLD position (SERVICE position).)
4) If the connection is correct, the following is displayed on the adjustment remote control LCD.

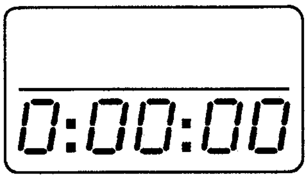


Fig. 8-5.

5) Specify your desired adjustment page by the adjustment remote controller. Presssing the EDIT SEARCH (+) increments the adjustment page. Pressing the EDIT SEARCH (–) decrements it. The adjustment page is shown in the hexadecimal numbers and there are 16 of them from 0 to F. The CAMERA adjustment page is page F and Pressing the EDIT SEARCH (–) button one push. (The adjustment data varies from one set to another.)

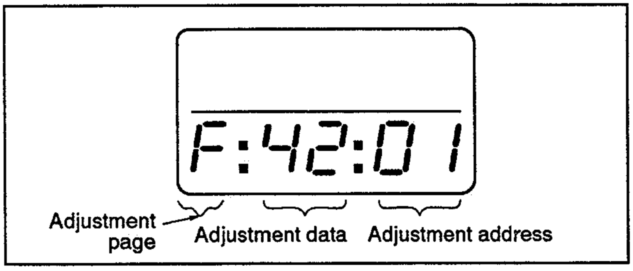


Fig. 8-6.

6) Specify your desired adjustment address by the adjustment remote controller. Pressing the FF (▸▸) button increments the adjustment address, and pressing the REW (◂◂) button decrements it.
   (The adjustment address is shown in the decimal number and there are 256 of them from 00 to FF. The adjustment address corresponds to the output terminal of the EVR (IC301 on the VC-95 board, IC504 on the VC-95 board, and IC004 of the MX-10 board). Refer to Table 8-2 for adjustment of each address.)
7) Make adjustment by increasing/decreasing the adjustment data. Pressing the PLSY (▸▸) button increases the adjustment data, and pressing the STOP (■) button decreases it.
8) Perfom adjustment by incrementing or decrementing the adjustment data. The adjustment data is incremented by pressing the PLAY (►) button. The adjustment data is decremented by pressing the STOP (■) button.
   - The adjustment data is indicated in hexadecimal. There are 256 values from 00 to FF.

Hexadecimal	0 1 2 3 4 5 6 7 8 9 A B C D E F
LCD indication	0 1 2 3 4 5 6 7 8 9 A b c d E F
Decimal equivalent	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Table 8-1.

   - The adjustment data corresponds to the output voltage of the EVR (IC301 on the VC-95 board, IC504 on the VC-95 board, and IC004 on the MX-10 board) as follows:
     MX-10 board IC004:2.0 ↔ 5.0 Vdc
     VC-95 board IC301:0 ↔ 5.0 Vdc
     VC-95 board IC504:1.0 ↔ 3.5 Vdc
9) Change the adjustment address with the FF (▸▸) or REW (◂◂) button in order to store the adjustment data into the non-volatile memory built in the EVR/AWB microcomputer (VC-95 board IC501).
   (If this operation is omitted, new adjustment data will not be stored into the non-volatile memory.)
10) There is a function provided to make note of the last error cuased by the COUNTER RESET button during operation of the set even if the power is turned off. This LAST MEMO EMERGENCY (last error) can be cleared.

8-1-5. Precuations on use of adjustment remote controller

It is possible to accidentally erase correct adjustment data due to an error in operation of the adjustment remote controller. In order to prevent this, we recommend that you make a note of all adjustment data before adjustment and record the new adjustment data after completing each adjustment item.

8-1-6. Adjustment address table (page F)

Note: Data already described in the adjustment data memo column are fixed data.

Adjustment Address	Adjustment Item	Remarks [Adjustment voltage output terminal]	Adjustment Data Memo Column
01	R CONT	[Pin ⑱ of IC004 on MX-10 board] Auto white balance adjustment	
02	B CONT	[Pin ⑲ of IC004 on MX-10 board]	
03	C1 GAIN	[Pin ② of IC004 on MX-10 board] Matrix adjustment (3)	
04	B GAIN	[Pin ③ of IC004 on MX-10 board] Pre-white balance adjustment	
05	R GAIN	[Pin ④ of IC004 on MX-10 board]	
06	Y2 GAIN	[Pin ⑤ of IC004 on MX-10 board] Matrix adjustment (2)	
07	Y1 GAIN	[Pin ⑥ of IC004 on MX-10 board] Matrix adjustment (1)	
08	YH GAIN	[Pin ⑦ of IC004 on MX-10 board] YH Level adjustment	
09	R-Y GAIN	[Pin ⑧ of IC004 on MX-10 board] Color reproduction adjustment	
0A	B-Y GAIN	[Pin ⑨ of IC004 on MX-10 board]	
0B	R-Y HUE	[Pin ⑫ of IC004 on MX-10 board]	
0C	B-Y HUE	[Pin ⑬ of IC004 on MX-10 board]	
0D	SHP LEVEL	[Pin ⑱ of IC301] H aperture adjustment	
0E	Y LEVEL	[Pin ⑲ of IC301] Y level adjustment	
0F	VAP GAIN	[Pin ② of IC301]	7A
10	SET UP	[Pin ③ of IC301] Setup adjustment	
11	CHROMA LEVEL	[Pin ④ of IC301] Chrama level adjustment	
12	V SUB CONT	[Pin ⑤ of IC301] V SUB adjustment	
13	PG CONT	[Pin ⑥ of IC301] PG CONT adjustment	
14	Yγ CONT	[Pin ⑦ of IC301]	AE
15	WHITE CLIP	[Pin ⑧ of IC301] White clip adjustment	
16	SYNC LEVEL	[Pin ⑨ of IC301] Sync level adjustment	
17	BURST LEVEL	[Pin ⑫ of IC301] Burst level adjustment	
18	MAX GAIN	[Pin ⑬ of IC301] Max gain adjustment	
19	IRIS REF	[Pin ⑱ of IC504] Iris adjustment	
1A	AGC REF	[Pin ⑲ of IC504] AGC adjustment	
1B	HALL GAIN	[Pin ② of IC504] Hall adjustment	
1C	HALL OFFSET	[Pin ③ of IC504]	
1D	FADER LEVEL	[Pin ④ of IC504] Not used	——
1E	AE OFFSET	[Pin ⑤ of IC504] AE OFFSET adjustment	
1F	FADER CONT	[Pin ⑥ of IC504]	00
20	FOCUS SPEED	[Pin ⑦ of IC504] Not used	——
21	ZOOM SPEED	[Pin ⑧ of IC504]	
22	M IRIS CONT	[Pin ⑨ of IC504] Not used	——
23	M AGC CONT	[Pin ⑫ of IC504] Not used	——
24	AGC IN PULSE	[Pin ⑬ of IC504]	
25	IN-OUT		
26	M12 THR		
27	KATAMUKI		
28	FA-WM		
29	FA-BM		
2A	FH-WM		
2B	FH-BM		

Table 8-2. (1)

Adjustment Address	Adjustment Item	Remarks [Adjustment voltage output terminal]	Adjustment Data Memo Column
2C	FA-SMH		
2D	FA-SML		
2E	FH-SMH		
2F	FH-SML		
30	LOW-F-SPEED		
31	MAN-F-SPEED		
32	STEP-A		
33	END-SENS-V		
34	ZOOM POSI1		
35	ZOOM POSI2		
36	ZOOM POSI3		
37	ZOOM POSI4		
38	ZOOM POSI5		
39	FOCUS POSI1		
3A	SEARCH-V		
3B	BACKRUSH2		
3C	BACKRUSH-MODE3		
3D	ZOOM TAN MASK		
3E	ZOOM-END-V		
3F	ZOOM-MODOSI		
40–57			
58	ZOOM-SPEED1	High speed	7A
59	ZOOM-SPEED2	Middle speed (Remote controll)	35
5A	ZOOM-SPEED3	Low speed	20
5B	ZOOM-SPEED4	Macro zoom speed	53
5C			00
5D			02
5E–5F			
60	IRISREF NOR	Standard AE level } Standard AE level and Program AE level adjustment	
61	IRISREF PO	Portrait AE level	
62	IRISREF SP	Sports AE level	
63–6A			
6B	MAXSHUT PO (H)	Portrait max shutter speed	01
6C	MAXSHUT PO (L)		00
6D	MAXSHUT SP (H)	Sports max shutter speed	01
6E	MAXSHUT SP (L)		18
6F	REF WIDTH	Program AE level hysteresis	0C
70			00
71	SHUT MULTI		40
72			
73	SHUT CONT 1		06
74	SHUTSTEP MULTI		01
75	IRIS OPEN		20
76	REF TURBO		40
77			
78	TURBO WIDTH		0C

Table 8-2. (2)

Adjustment Address	Adjustment Item	Remarks [Adjustment voltage output terminal]	Adjustment Data Memo Column
79			
7A	TURBO TH		0C
7B			
7C	SHUT COUNT 2		02
7D	SHUT COUNT 3		02
7E–7F			
80	USER R-Y GAIN		10
81	USER B-Y GAIN		0D
82	USER B-Y HUE		0D
83	USER R-Y HUE		0C
84	USER SHP LEVEL		0A
85	USER Y LEVEL		0C
86			
88		Hall adjustment	
87			
89			
8A			
8B			
8C–8F			
90	R3200 MSB	3200K preset data (red) Auto white balance preset adjustment	
91	R3200 LSB		
92	B3200 MSB	3200K preset data (blue)	
93	B3200 LSB		
94	G3200 MSB	3200K preset data (green)	
95	G3200 LSB		
96	SHUTTER IN	Shutter in/out adjustment	
97	SHUTTER OUT		
98	IRIS IN		B0
99	IRIS OUT		C0
9A–AB			
AC	BTM SLP R		48
AD	BTM SLP B		78
AE	MDL SLP R		60
AF	MDL SLP B		40
B0	TOP SLP R		66
B1	TOP SLR B		18
B2	KEIKO R		66
B3	KEIKO B		18
B4	BTM UP		C2
B5	BTM DOWN		A0
B6	MDL UP		AD
B7	MDL DWN		96
B8	TOP UP		78
B9	TOP DWN		60
BA	KEIKO		6C
BB	KEIKO DWN		60

Table 8-2. (3)

<table>
<tr><th>Adjustment Address</th><th>Adjustment Item</th><th>Remarks
[Adjustment voltage output terminal]</th><th>Adjustment Data Memo Column</th></tr>
<tr><td>BC</td><td>R TOP LMT</td><td></td><td>6E</td></tr>
<tr><td>BD</td><td>R DWN LMT</td><td></td><td>21</td></tr>
<tr><td>BE</td><td>B TOP LMT</td><td></td><td>8C</td></tr>
<tr><td>BF</td><td>B IN TOP</td><td></td><td>65</td></tr>
<tr><td>C0</td><td>B IN MAX</td><td></td><td>5C</td></tr>
<tr><td>C1</td><td>B OUT MIN</td><td></td><td>5C</td></tr>
<tr><td>C2</td><td>B OUT DWN</td><td></td><td>4A</td></tr>
<tr><td>C3</td><td>B DWN LMT</td><td></td><td>1B</td></tr>
<tr><td>C4</td><td>LL LMT</td><td></td><td>06</td></tr>
<tr><td>C5</td><td>TM DIVID</td><td></td><td>5C</td></tr>
<tr><td>C6</td><td>BM DIVID</td><td></td><td>39</td></tr>
<tr><td>C7</td><td>DELAY TM</td><td></td><td>08</td></tr>
<tr><td>C8</td><td>FAST TM</td><td></td><td>40</td></tr>
<tr><td>C9</td><td>OUT HYS OFF</td><td></td><td>0E</td></tr>
<tr><td>CA</td><td>OUT B HYS</td><td></td><td>07</td></tr>
<tr><td>CB–CF</td><td></td><td></td><td></td></tr>
<tr><td>D0</td><td>SYSTEM CONFIGRATION</td><td></td><td>00</td></tr>
<tr><td>D1</td><td></td><td></td><td></td></tr>
<tr><td>D2–D5</td><td></td><td></td><td></td></tr>
<tr><td>D6</td><td></td><td></td><td></td></tr>
<tr><td>D7</td><td></td><td></td><td></td></tr>
<tr><td>D8</td><td></td><td></td><td></td></tr>
<tr><td>D9</td><td></td><td></td><td></td></tr>
<tr><td>DA</td><td></td><td></td><td></td></tr>
<tr><td>DB</td><td></td><td></td><td></td></tr>
<tr><td>DC–DF</td><td></td><td></td><td></td></tr>
<tr><td>E0</td><td>DISPLAY MODE</td><td></td><td>00</td></tr>
<tr><td>E1</td><td></td><td></td><td></td></tr>
<tr><td>E2–EA</td><td></td><td></td><td></td></tr>
<tr><td>EB</td><td>TEST MODE</td><td>The following test mode is selected by changing adjustment data.
<table>
<tr><th>Adjustment Data</th><th>Test Mode</th><th>Remarks</th></tr>
<tr><td>00</td><td>NORMAL</td><td></td></tr>
<tr><td>01</td><td>F-HANTING</td><td rowspan="2">Not used</td></tr>
<tr><td>03</td><td>ZOOM-POSI</td></tr>
<tr><td>05</td><td>IRIS-POSI</td><td>HALL SENS level</td></tr>
<tr><td>0B</td><td>AGC-CONT</td><td>AGC CONT level</td></tr>
<tr><td>0D</td><td>FOCUS-POSI</td><td>Not used</td></tr>
<tr><td>11</td><td>SHUTTER</td><td>Shutter speed</td></tr>
<tr><td>13</td><td>IRIS LEVEL</td><td>IRIS CONT level</td></tr>
<tr><td>ED</td><td>FILTER-FHM</td><td rowspan="10">Not used</td></tr>
<tr><td>EF</td><td>FILTER-FAM</td></tr>
<tr><td>F1</td><td>FILTER-SFH L</td></tr>
<tr><td>F3</td><td>FILTER-SFH H</td></tr>
<tr><td>F5</td><td>FILTER-SFA L</td></tr>
<tr><td>F7</td><td>FILTER-SFH H</td></tr>
<tr><td>F9</td><td>FILTER-FA L</td></tr>
<tr><td>FB</td><td>FILTER-FH L</td></tr>
<tr><td>FD</td><td>FILTER-FA H</td></tr>
<tr><td>FF</td><td>FILTER-FH H</td></tr>
</table></td><td>00</td></tr>
</table>

Table 8-2. (4)

<table>
<tr><th>Adjustment Address</th><th>Adjustment Item</th><th>Remarks
[Adjustment voltage output terminal]</th><th>Adjustment Data Memo Column</th></tr>
<tr><td>EC</td><td>AWB MODE 3</td><td>The following auto white balance mode is selected by changing the adjustment data.
<table>
<tr><th>Adjustment Data</th><th>AWB mode</th></tr>
<tr><td>01</td><td>NORMAL</td></tr>
<tr><td>02</td><td>AUTO WHITE BALANCE CHECK</td></tr>
</table></td><td>01</td></tr>
<tr><td>ED</td><td>AWB MODE 2</td><td></td><td>00</td></tr>
<tr><td>EE</td><td>AWB MODE 1</td><td>The following auto white balance adjustment mode is selected by changing the adjustment data.
<table>
<tr><th>Adjustment Data</th><th>Adjustment Mode</th></tr>
<tr><td>00</td><td>AWB MODE 1</td></tr>
<tr><td>D0</td><td>WB DIRECT</td></tr>
<tr><td>F0</td><td>WB FREE</td></tr>
<tr><td>01</td><td>3200k Data fetch 1</td></tr>
<tr><td>23</td><td>3200k Data fetch 2</td></tr>
</table></td><td>00</td></tr>
<tr><td>EF</td><td></td><td></td><td>00</td></tr>
<tr><td>F0</td><td></td><td></td><td></td></tr>
<tr><td>F1</td><td></td><td></td><td></td></tr>
<tr><td>F2</td><td></td><td></td><td></td></tr>
<tr><td>F3</td><td></td><td></td><td></td></tr>
<tr><td>F4–FD</td><td></td><td>Not used</td><td></td></tr>
<tr><td>FE</td><td></td><td></td><td></td></tr>
<tr><td>FF</td><td></td><td></td><td></td></tr>
</table>

Table 8-2. (6)

8-1-7. Check Point Array

Almost all of the measurement points for camera block adjustment are located in the check point array on the VC-95 board. Solder short lead wires onto the terminals needed for adjustment and connect an oscilloscope, etc.

The terminal numbers and signal names for the check point array are shown in Table 8-3.

Note: The CPA connector jig (J-6082-109-A) allows you to connect an oscilloscope easily.

Terminal No.	Signal Name	Terminal No.	Signal Name
A1	N.C	B1	N.C
A2	PG CONT	B2	N.C
A3	N.C	B3	Y LPF OUT
A4	N.C	B4	V SUB
A5	VAP OUT	B5	VAP SLICE
A6	TP	B6	N.C
A7	WB-G	B7	YH GAIN
A8	CAM Y	B8	Y2 GAIN
A9	YH	B9	N.C
A10	CAM C	B10	GND
A11	YH OUT 1	B11	IRIS OUT

* N.C......no connection

Table 8-3.

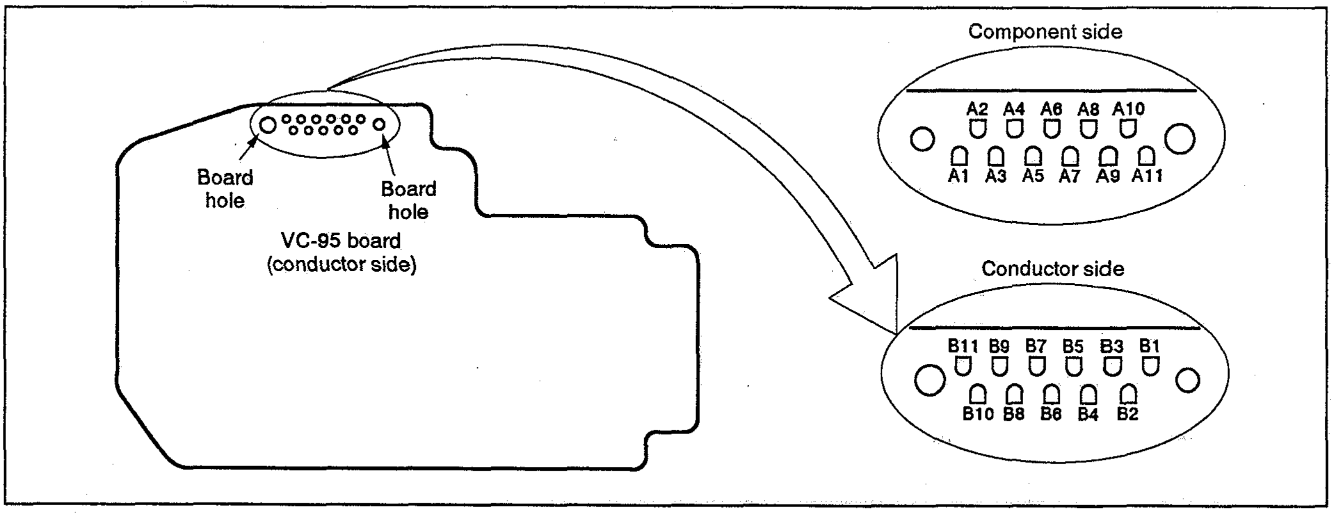

Component side
A2 A4 A6 A8 A10
A1 A3 A5 A7 A9 A11
Board hole
Board hole
VC-95 board (conductor side)
Conductor side
B11 B9 B7 B5 B3 B1
B10 B8 B6 B4 B2

Fig. 8-7.

8-1-8. AF Microcomputer Data Reading Jig

The AF microcomputer data reading jig converts the serial data (output data varies according to hall (iris) state, shutter speed, AGC CONT level, IRIS CONT level, etc.) for adjustment output from the camera control microcomputer (IC501 on VC-95 board) into a 2-digit hexadecimal code and displays it on the LED.

Note:

Change the value of R1 from 10kΩ to 100kΩ in the AF microcomputer data reading jig. (If the value is kept to difference of the impedance.)

When adjusting the old-model Handy Cam, 100kΩ is allowed to perform the adjustment.

Connections:

Connect as shown in the diagram below.

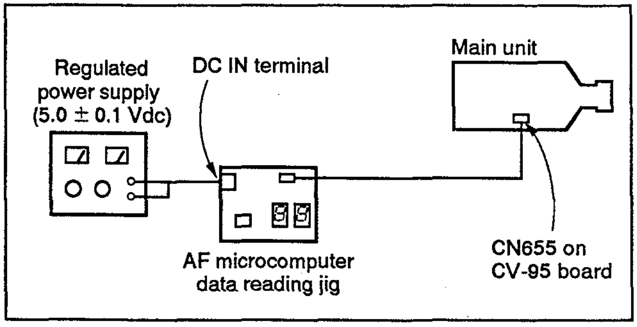

Regulated power supply (5.0 ± 0.1 Vdc)
DC IN terminal
Main unit
AF microcomputer data reading jig
CN655 on CV-95 board

Fig. 8-8.

8-1-9. Data Processing

For some of the adjustment items, calculation from the data (hexadecimal) indicated on the AF microcomputer data reading jig and adjustment remote controller is needed to obtain the adjustment data. In these cases, convert the hexadecimal values to decimal before calculation and reconvert the result to hexadecimal to obtain the adjustment data. A hexadecimal — decimal conversion table is shown in Table 8-4.

Hexadecimal-Decimal Conversion Table

Hexadecimal lower digit / Hexadecimal upper digit	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (c)	② D (d)	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A(A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
① B(b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C(c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D(d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E(E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F(F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note: ( ) is the indication on the jig or adjustment remote commander.

Example: The indication on the jig or adjustment remote commander is BD (b d).
As the upper digit is B (b) and the lower digit is D (d), a decimal value of 189 is obtained from the intersection of ① and ② in the above table.

Table 8-4.

8-2. CAMERA SYSTEM ADJUSTMENTS

- Set the address 00 data (on page 00) to 01 and perform the adjustment.
  (WINDOW OFF mode is set. This mode is automatically released by turning the power off.)
- In principle, all adjustments must be made in accordance with Adjustment procedure.
- When replacing lens, do not forget to make the following adjustment.

[Adjustment Sequence]

1) Flange Back Adjustment
2) Auto Focus Adjustment
3) HALL Adjustment
4) IRIS Adjustment
5) Shutter IN/OUT Adjustment

- When replacing CCD imager, do not forget to adjust the camera system property.

8-2-1. Flange Back Adjustment

Subject	Siemens star (2 m directly in front of the lens)
Measurement Point	Check with a monitor TV
Measuring Instrument	
Adjusting Element	Flange back adjusting pin
Tools	Phillips screwdriver, flat blade (–) screwdriver

Adjusting method:

1) Press the FOCUS button to set to the MANUAL mode.
2) Position a Siemens star 2 m directly in front of the lens (See Fig. 8-2.).
3) Orient the camera block to have the center of the Siemens star imaged on the monitor TV screen coincide with the monitor screen center.
4) Check to assure the smooth motion of the lens zoom lever to both its extreme WIDE position (8.5 mm) and TELE position (85 mm), and then set it at the extreme WIDE position. (In this process, also check the monitor image to assure proper zooming operation.)
5) Select the page F and the address 19 with the adjustment remote controller, and make note of the adjustment data for this address.
6) Set the adjustment data to FF with the adjustment remote controller. (Iris open mode)
   At this time, adjust the illumination on the Siemens star or place an ND filter over the lens, and confirm that the proper image is displayed on the monitor TV screen.
7) Loosen flange back setscrew ③ with a Phillips screwdriver. (See Fig. 8-9.)
8) Overlap the stopper bottom end ① and focus mark line ②. (See Fig. 8-9.)
9) By turning the flange back adjusting Pin ④ while watching the monitor screen, attain the optimum definition of a wedge at the Siemens star center on the screen. (Turn it a few turns to the left and right to ensure optimum definition.)
   Note: Do not turn the adjusting pin excessively in either direction.
10) While holding the flange back adjusting Pin ④ to prevent further rotation, retighten the flange back setscrew ③.
11) Check to see that the stopper bottom end is set within the range shown in Fig. 8-10 when the focus is matched by turning the focus ring.
    If not, repeat steps 8) through 10).
12) After setting the zoom lever to TELE end, set it to WIDE end again.
13) With the zoom lever fixed at its WIDE end, turn the focusing ring and set it to the position that provides the optimum definition image of the wedge. Check to assure the lower side of stopper is within the range shown in Fig. 8-10.
14) Set the adjustment address to 19 and enter the adjustment data recorded in 5).
    (Iriss normal)
15) Change the adjustment address to store the adjustment data in the memory.

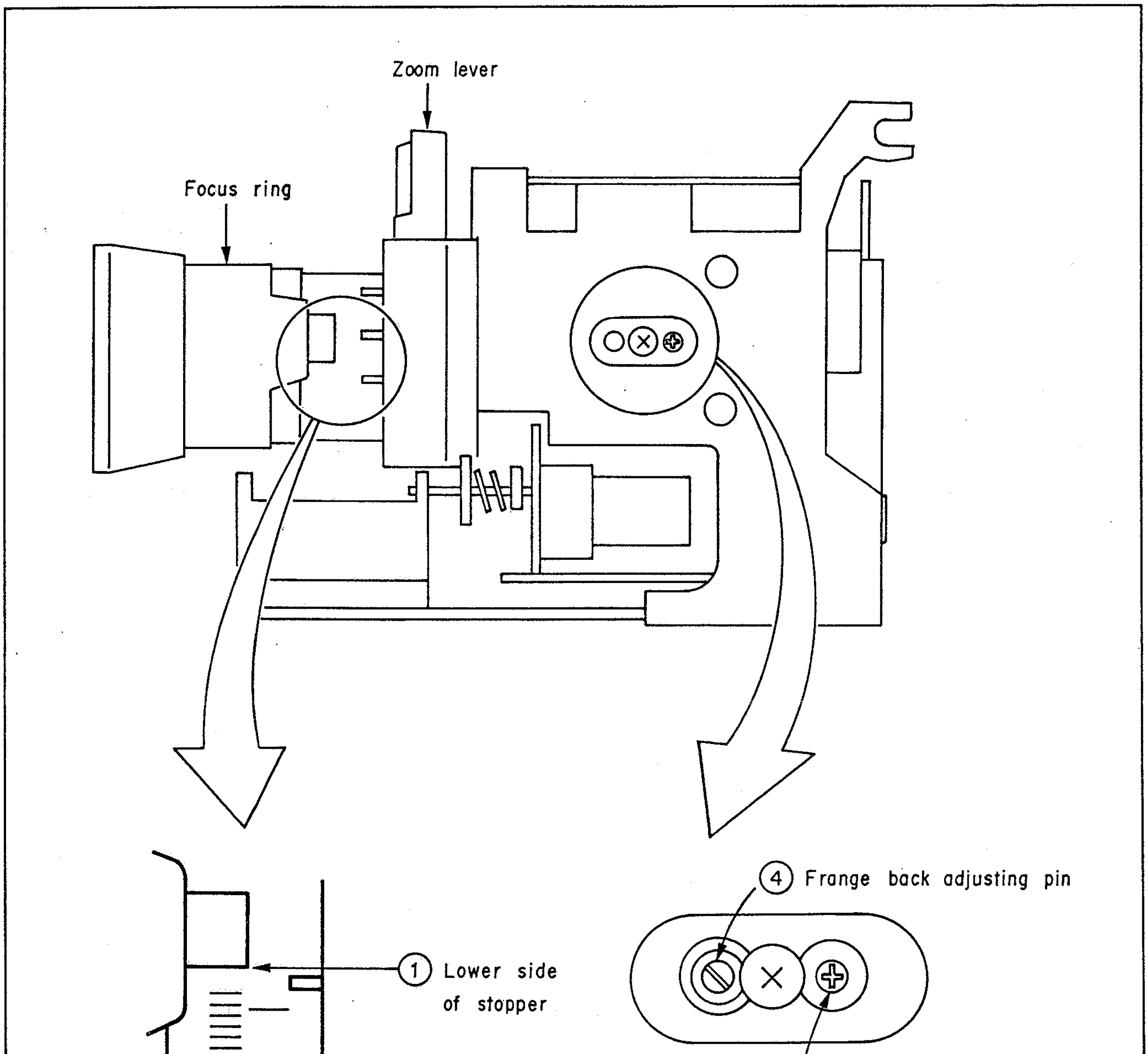

Zoom lever
Focus ring
④ Frange back adjusting pin
① Lower side of stopper
② Focus mark line
③ Flange back setscrew

Fig. 8-9

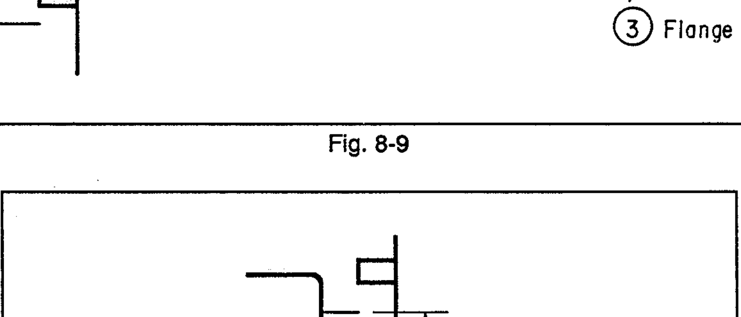

Lower side of Stopper
Lower side of Stopper with in this range

Fig. 8-10

8-2-2. Auto Focus Adjustment

Subject	IR AF adjusting chart (2m directly in front of lens reference plane)
Measurement Point	Check with a monitor TV.
Measuring Instrument	
Adjustment element	AF adjustment screw
Adjustment tool	Hexagonal wrench (1.25 mm)
Specified Value	0 ± 1 mm

IR AF Adjusting chart: Fig. 8-11 (a)
Write the following pattern on the white Kent paper (A3 size).

1) Reticle to indicate chart center.
2) Minute pattern to discriminate focus condition.

A pattern example is shown below.

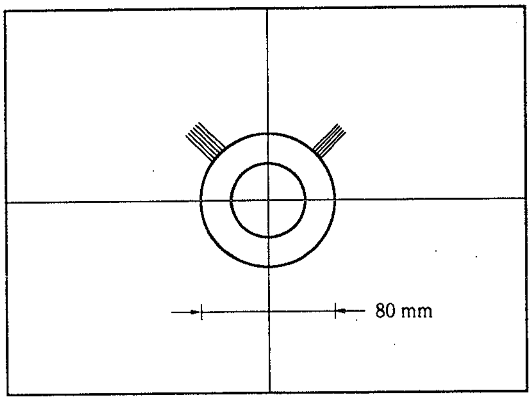


Fig. 8-11 (a).

Adjusting method:

1) Position a IR AF adjusting chart 2m directly in front of the lens reference plane (see Fig. 8-2).
2) Adjust the illumination on the chart so that the proper image is displayed on the monitor TV.
3) Turn on the auto focus.
4) Set the zoom lever to TELE end → WIDE end → TELE end and fix at TELE end.
5) Orient the camera block to have the center of chart imaged on the monitor TV screen coincide with the monitor screen center.
6) Turn the AF adjustment screw with hexagonal wrench (1.25 mm) and adjust the focus on the Siemens star.
7) Turn the focus ring to WIDE end (0.75m).
8) Check to see that the stop position of the focus ring is within ± 1 mm against the optimum focus position.
9) Turn the focus ring to TELE end (∞).
10) Check to see that the stop position is within ± 1 mm against the optimum focus position.
11) Position the IR AF adjusting chart 1m directly in front of the lens reference plane and check the stop position of the focus ring in the same procedure of 2m position. When the difference against the optimum focus position is ± 2.0 mm or more, check if the specification is met after positioning 2m in front of the reference lens plane again after readjusting the AF adjustment screw.

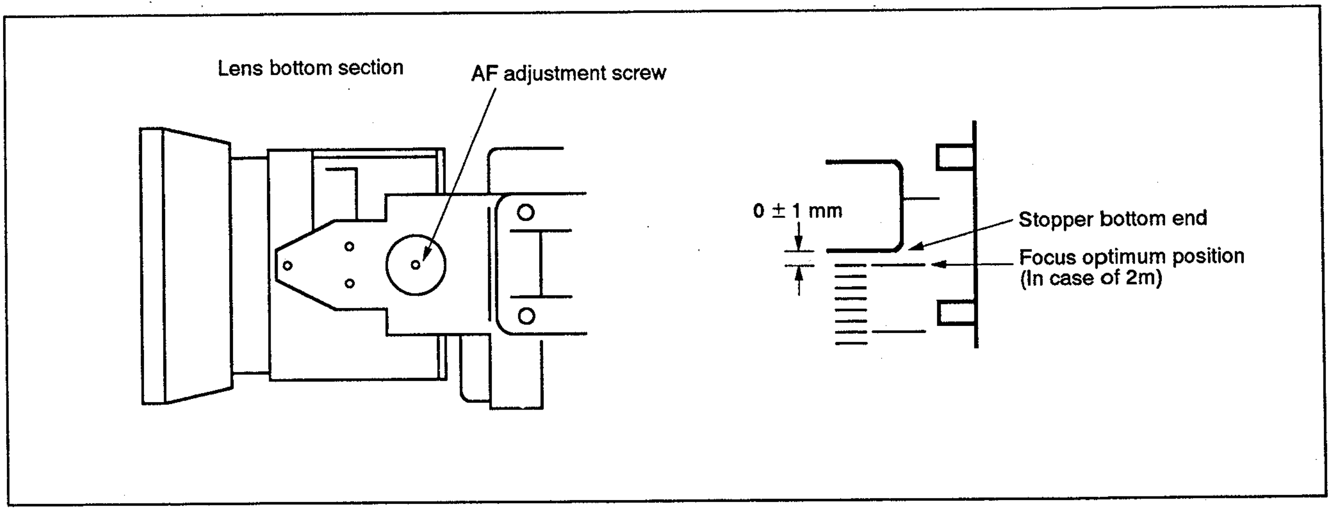


Fig. 8-11 (b).

8-2-3. CAMERA DC-DC converter Check (VC-95, CD-59 Board)

Measuring Instrument	Digital voltmeter
CAM 4.9V Check	
Measurement Point	Pin ④ of CN304 on VC-95 board
Specified Value	4.9 ± 0.1 Vdc
4.9V Check	
Measurement Point	Pin ③ of CN101 on CD-59 board
Specified Value	4.9 ± 0.1 Vdc
15V Check	
Measurement Point	Pin ① of CN101 on CD-59 board
Specified Value	15.0 ± 0.2 Vdc
–9V Check	
Measurement Point	Pin ② of CN101 on CD-59 board
Specified Value	–9.00 ± 0.15 Vdc

Checking method:

1) Confirm that each voltage meet the specified value.

8-2-4. EVR Initial Settings

Set to the following initial settings of the adjustment data when the CAMERA microcomputer or the CCD IMAGER was replaced.

Adjustment Address	Adjustment Data Initial Value	Adjustment Address	Adjustment Data Initial Value	Adjustment Address	Adjustment Data Initial Value
0E (Y LEVEL)	9C	76 (REF TURBO)	40	B9 (TOP DWN)	60
0F (VAP GAIN)	7A	78 (TURBO WIDTH)	0C	BA (KEIKO)	6C
12 (V SUB CONT)	3A	7A (TURBO TH)	0C	BB (KEIKO DWN)	60
13 (PG CONT)	5A	7C (SHUT COUNT 2)	02	BC (R TOP LMT)	6E
14 (Y γ CONT)	AE	7D (SHUT COUNT 3)	02	BD (R DOWN LMT)	21
15 (WHITE CLIP)	FF	80 (USER R-Y GAIN)	10	BE (B TOP LMT)	8C
18 (MAX GAIN)	E0	81 (USER B-Y GAIN)	0D	BF (B IN TOP)	65
19 (IRIS REF)	4C	82 (USER B-Y HUE)	0D	C0 (B IN MAX)	5C
1F (FADER CONT)	00	83 (USER R-Y HUE)	0C	C1 (B OUT MIN)	5C
58 (ZOOM-SPEED1)	7A	84 (USER SHP LEVEL)	0A	C2 (B OUT DWN)	4A
59 (ZOOM-SPEED2)	35	85 (USER Y LEVEL)	0C	C3 (B DWN LMT)	1B
5A (ZOOM-SPEED3)	20	96 (SHUTTER IN)	B1	C4 (LL LMT)	06
5B (ZOOM-SPEED4)	53	97 (SHUTTER OUT)	8B	C5 (TM DIVID)	5C
5C (	00	98 (IRIS IN)	B0	C6 (BM DIVID)	39
5D	02	99 (IRIS OUT)	C0	C7 (DELAY TM)	08
60 (IRISREF NOR)	60	AC (BTM SLP R)	48	C8 (FAST TM)	40
61 (IRISREF PO)	60	AD (BTM SLP B)	78	C9 (OUT HYS OFF)	0E
62 (IRISREF SP)	60	AE (MDL SLP R)	60	CA (OUT B HYS)	07
6B (MAXSHUT PO (H))	01	AF (MDL SLP B)	40	D0 (SYSTEM)	00
6C (MAXSHUT PO (L))	00	B0 (TOP SLP R)	66	E0 (DISPLAY MODE)	00
6D (MAXSHUT SP (H))	01	B1 (TOP SLP B)	18	EB (MODE)	00
6E (MAXSHUT SP (L))	18	B2 (KEIKO R)	66	EC (AWB MODE3)	01
6F (REF WIDTH)	0C	B3 (KEIKO B)	18	ED (AWB MODE2)	00
70	00	B4 (BTM UP)	C2	EE (AWB MODE1)	00
71 (SHUT MULTI)	40	B5 (BTM DOWN)	A0	EF (CAM ALON)	00
73 (SHUT CONT 1)	06	B6 (MDL UP)	AD		
74 (SHUTSTEP MULTI)	01	B7 (MDL DWN)	96		
75 (IRIS OPEN)	20	B8 (TOP UP)	78		

Table 8-6.

Adjusting method:

1) Set the adjustment data at the various adjustment addresses to the initial values using the adjustment remote controller.
2) Change the adjustment address to store the last adjustment data in the memory.

8-2-5. Prime Oscilation Adjustment (CD-59 Board)

Measurement Point	Pin ③ of DT-77 board
Measuring Instrument	Frequency counter
Adjusting Elemtnt	CT122
Specified Value	14318181 ± 71 Hz

Note: Connect the frequency counter through a buffer amplifier (Oscilloscope, etc.) having high impedance and low capacitance.

Preparation:
1) Renove CD-59 board from the lens block.

Adjusting method:
1) Adjust to 14318181 ± 71 Hz with CT122.

8-2-6. PG CONT and VSUB Adjustment

1. PG CONT adjustment (VC-95 board)

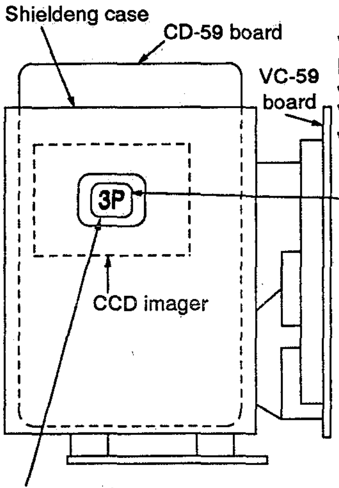
Subject	Not needed
Measurement Point	Pin (A2) (PG CONT) of check point array
Measuring Instrument	Digital voltmeter
Adjustment page	F
Adjustment Address	13 (PG CONT)
Specified Value	(Voltage indicated by the imager) ± 0.1 Vdc

Adjusting method:
1) Select the page F and the address 13 with the adjustment remote controller.
2) Change the adjustment data to set the PG CONT voltage to (voltage indicated by the imager) ± 0.1 Vdc.
3) Change the adjustment address to store the adjustment data in the memory.

2. VSUB adjustment (VC-95 board)

Subject	Not needed
Measurement Point	Pin (B4) (V SUB) of check point array
Measuring Instrument	Digital voltmeter
Adjustment Page	F
Adjustment Address	12 (V SUB)
Specified Value	(Voltage indicated by the imager) Vdc ± 3 %

Adjusting method:
1) Change the adjustment data at page F address 12 using the adjustment remote controller to set the VSUB voltage to (voltage indicated by the imager) Vdc ± 3 %.
2) Change the adjustment address to store the adjustment data in the memory.



(Example)
When the indication is 3P;
PG CONT voltage specified value=2.0 ± 0.1 Vdc
V SUB voltage specified value=13.5 ± 0.1 Vdc

PG CONT voltage code

Code	Voltage (Vdc)
0	0.5
1	1.0
2	1.5
3	2.0
4	2.5
5	3.0
6	3.5
7	4.0

V SUB voltage code

Code	Voltage (Vdc)
A	7.0
B	7.5
C	8.0
D	8.5
E	9.0
F	9.5
G	10.0
H	10.5
J	11.0
K	11.5
L	12.0
M	12.5
N	13.0
P	13.5
Q	14.0
R	14.5
S	15.0
T	15.5
U	16.0
V	16.5
W	17.0
X	17.5
Y	18.0
Z	18.5

Fig. 8-12.

8-2-7. Iris Adjustment (VC-95 Board)

Subject	Color bar chart standard picture frame
Filter	ND filter 0.4 and 0.1
Measurement Point	Pin (B11) (IRIS OUT) of check point array
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	19 (Iris)
Specified Value	150 ± 10 mV

Adjusting method:

1) Select the page 5 and the address 00 with the adjustment remote controller, and set the data to 01.
2) Select the adjustment page F and the adjustment address 19.
3) Without attaching an ND filter, change the adjustment data with the adjustment remote controller to set the IRIS OUT signal level to 150 ± 10 mV.
4) Attach the ND filter 0.5 (0.4+0.1) to the front of the lens and confirm that there is a smooth change in the signal level.
5) Remove the ND filter and confirm that the signal level is 150 ± 20 mV.
6) Repeat 3) through 5) if the specified value is not met.
7) Change the adjustment address to store the adjustment data in the memory.

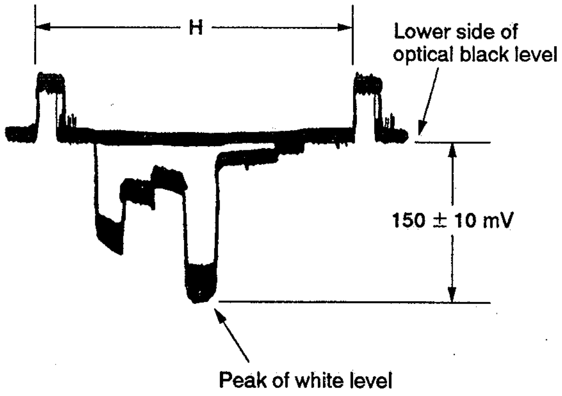


Fig. 8-13.

8-2-8. HALL Adjustment (VC-95 Board)

1. HALL Adjustment 1

Subject	White pattern standard picture frame
Measurement Point	CN655
Measuring Instrument	AF microcomputer data reading jig
Adjustment Page	F
Adjustment Address	87, 8B, 8A

Adjusting method:

1) Select the adjustment page F with the adjustment remote controller.
2) Select the adjustment address EB and set the adjustment data to 05. (HALL SENS level indication mode setting.)
   Select the adjustment address 1B and set the adjustment data to 20.
   Select the adjustment address 1C and set the adjustment data to 00.
3) Read the data indicated on the AF microcomputer data reading jig.
4) When the indicated data is over F8.
   1) Select the adjustment address 1C and change the adjustment data until the indication of AF microcomputer data reading jig is F8 ± 3.
   2) Read the data of adjustment address 1C, and enter adjustment address 87.

   When the indicated data is below F8.
   1) Select adjustment address 87 and set the adjustment data to 00.
5) Read the data (W_2) indicated on the AF microcomputer data reading jig, and enter adjustment address 8B.
6) Select adjustment address 1B and set the adjustment data to 00.
7) Read the data (W_1) indicated on the AF microcomputer data reading jig and enter adjustment address 8A.
8) Perform "HALL adjustment 2".

2. HALL Adjustment 2

Subject	All black (cover lens with blacK cap)
Measurement Point	CN655
Measuring Instrument	AF microcomputer data reading jig.
Adjustment Page	F
Adjustment Address	88, 89, 1B (HALL GAIN), 1C (HALL OFFSET)

Note: Perform "HALL adjustment 1" before this adjustment.

Adjusting method:

1) Read the data (K_1) indicated on the AF microcomputer data reading jig, and enter adjustment address 88.
2) Select adjustment address 1B and set the adjustment data to 20.
3) Read the data (K_2) indicated on the AF microcomputer data reading jig, and enter adjustment address 89.
4) Convert the adjustment data W_1 (address 8A) to decimal to obtain W_1', the adjustment data W_2 (address 8B) to decimal to obtain W_2', the adjustment data K_1', K_1 to decimal to obtain K_1', and the adjustment data K_2 to decimal to obtain K_2'. (See table 8-4, Hexadecimal-decimal conversion table)
5) Obtain D′ by the following formula.

$$D' = \frac{(208+K1'-W1')\times\Delta K'+3\times\Delta W'}{\Delta K'+\Delta W'}$$

$$\begin{pmatrix}\Delta K' = K1'-K2' \\ \Delta W' = W2'-W1'\end{pmatrix}$$

6) Convert D′ to hexadecimal and obtain D. (when converting, if there is a fraction under decimal, round it off.)
7) Select the adjustment address 1B and set the adjustment data to 00.
8) Select the adjustment address 1C, and change the adjustment data until the indication of AF microcomputer data reading jig is equal to D value.
9) Select the adjustment address 1B, and change the adjustment data until the indication of AF microcomputer data reading jig is 03.
10) Perform "HALL adjustment 3".

3. HALL Adjustment 3

Subject	White pattern stndard picture frame
Measurement Point	CN655
Measuring Instrument	AF microcomputer data reading jig.
Adjustment Page	F
Adjustment Address	1B (HALL GAIN), IC (HALL OFFSET)

Note: Perform "HALL adjustment 2" before this adjustment.

Adjisting method:

1) Read the data (Wo) indicated on the AF microcomputer data reading jig.
2) When Wo value is from CF to D1, peform the adjustmnt after 15).
3) convert Wo to decimal to obtain Wo′.
4) Obtain E′ by the following formulla.

$$E' = \frac{(208\times\Delta K')+(Wo'\times\Delta W')}{\Delta K'+\Delta W'}$$

$$\begin{pmatrix}\Delta K' = K1'-K2' \\ \Delta W' = W2'-W1'\end{pmatrix}$$

5) Convert E′ to hexadecimal and obtain E.
6) Select the adjustment address 1C, and change the adjustment data until the indication of AF microcomputer data reading jig is equal to E value.
7) When E value is equal to DO, perform the adjustment after 9).
8) Select the adjustment address 1B and change the adjustment data until the indication of AF microcomputer data reading jig is DO.
9) Cover the lans with black cap.
10) Read the data (Ko) indicated on the AF microcomputer data reading jig.
11) When Ko Value is from 01 to 05, perform the adjustment after 15).
12) Select the adjustment adress 1B and change the adjustment data until the indication of AF microcomputer data reading jig is 03.
13) Remove the black cap.
14) Comfirm that the indication of AF microcomputer data reading jig is from CF to D1.
15) Select the adjustment address EB and set the adjustment data to 00.
16) Change the adjustment address to store the adjustment data in the memory.

8-2-9. AGC Adjustment (VC-95 Board)

Subject	Color bar chart standard picture frame
Measurement Point	Pin (B3) (Y LPF OUT) of check point array
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	1A (AGC)
Specified Value	180 ± 10 mV

Adjusting method:

1) Select the page 5 and the address 00 with the adjustment remote controller, and set the data to 01.
2) Select the adjustment page F and the adjustment address 1A.
3) Change the adjustment data with the adjustment remote controller to set the Y LPF signal level to 180 ± 10 mV.
4) Change the adjustment address to store the adjustment data in the memory.

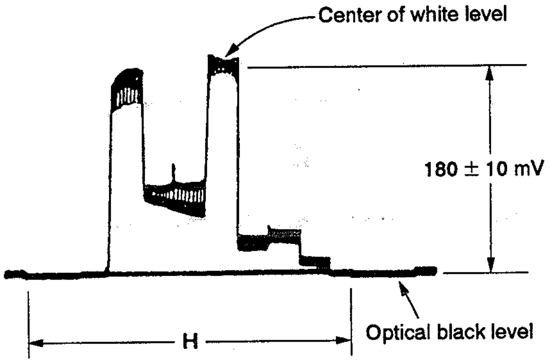


Fig. 8-14.

8-2-10. Matrix Adjustment (VC-95 Board)

1. Y_1 Gain Adjustment

Subject	Color bar chart standard picture frame
Measurement point	Pin (A5) (VAP OUT) of check point array
Measuring instrument	Oscilloscope
Adjustment page	F
Adjustment address	07 (Y_1 Gain)
Specified value	$Y_0-Y_1=0 \pm 5$ mV

Preparation:

1) Connect Pin (B8) (Y_2 GAIN) and GND with a jumper wire.
2) Connect Pin (B5) (VAP SLICE) and GND with a jumper wire.

Adjusting Method:

1) Select the adjustment page F with the adjustment remote controller.
2) Select the adjustment address 0F with the adjustment remote controller and set the adjustment data to 00. (VAP GAIN: MAX)
3) Select the adjustment address 07.
4) Change the adjustment data and set the Y_0-Y_1 waveform to be a straight line. (There should not be difference.)
5) Change the adjustment address to store the adjustment data in the memory.
6) Remove the jumper wires.
7) Perform "Y_2 Gain adjustment."

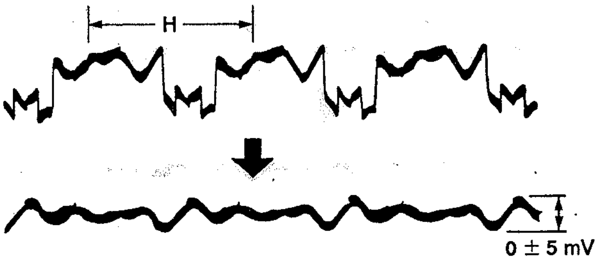


Fig. 8-15.

2. Y_2 Gain Adjustment

Subject	Color bar chart standard picture frame
Measurement point	Pin (A5) (VAP OUT) of check point array
Measuring instrument	Oscilloscope
Adjustment page	F
Adjustment address	06 (Y_2 GAIN)
Specified value	$Y_1-\frac{Y_0+Y_2}{2}=0 \pm 5$ mV

Preparation:

1) Connect pin (B5) (VAP SLICE) and GND with a jumper wire.

Adjusting Method:

1) Select the adjustment page F with the adjustment remote controller.
2) Select the adjustment address 0F with the adjustment remote controller and set the adjustment data to 00. (VAP GAIN: MAX)
3) Select the adjustment address 06.
4) Change the adjustment data and set the ($Y_1-\frac{Y_0+Y_2}{2}$) waveform to be a straight line. (There should not be difference.)
5) Select the adjustment address 0F with the adjustment remote controller and set the adjustment data to 7A.
6) Change the adjustment address to store the adjustment data in the memory.
7) Remove the jumper wire.

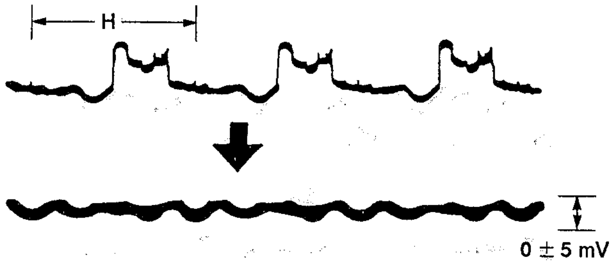


Fig. 8-16.

8-2-11. Y_H Level Adjustment (VC-95 Board)

Subject	Color bar chart standard picture frame
Measurement point	Pin (A6) (TP) of check point array
Measuring instrument	Oscilloscope
Adjustment page	F
Adjustment address	08 (Y_H GAIN)
Specified value	0 ± 5 mV

Adjusting Method:

1) Select the page 5 and the address 00 with the adjustment remote controller and set the data to 01.
2) Select the adjustment page F and the adjustment address 08.
3) Change the adjustment data with the adjustment remote controller and set the waveform to be straght line. (There should not be difference)
4) Change the adjustment address to store the adjustment data in the memory.

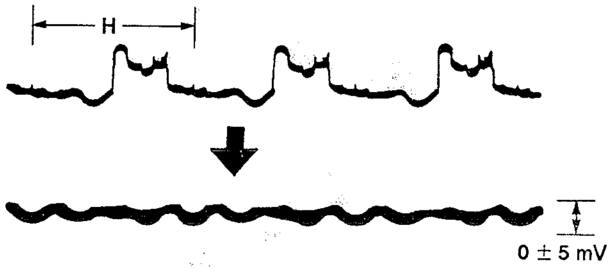


Fig. 8-17.

8-2-12. C1 Gain Adjustment (VC-95 Board)

Subject	Color bar standard picture frame
Measurement Point	CH1(X): pin ㉚ of MX-10 board (B–Y) CH2(Y): pin ㉛ of MX-10 board (R–Y)
Measuring Instrument	Oscilloscope (X-Y mode)
Adjustment Page	F
Adjustment Address	03 (C1 GAIN)
Specified Value	Separate color luminance points become one.

Adjusting method:

1) Select the page 5 and the address 00 with the adjustment remote controller and set the data to 01.
2) Select the adjustment page F and the adjustment address 03.
3) Change the adjustment data so that the two separate color luminance points become one respectively.
4) Change the adjustment address to store the adjustment data in the memory.

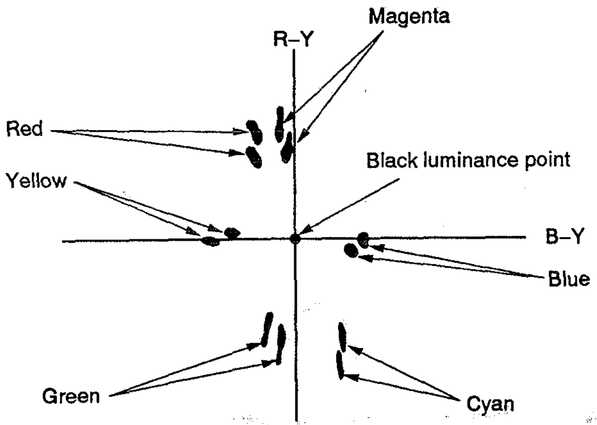


Fig. 8-18.

8-2-13. Sync Level Adjustment (VC-95 Board)

Subject	All black (cover lens with black cap)
Measurement Point	Pin (A8) (CAM Y) of check point array or pin ① (Y OUT) of CN307
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	16 (SYNC LEVEL)
Specified Value	145 ± 5 mVp-p

Adjusting method:

1) Select the adjustment page F and the adjustment address 16 with the adjustment remote controller.
2) Change the adjustment data with the adjustment remote controller to set the sync level to 145 ± 5 mVp-p.
3) Change the adjustment address to store the adjustment data in the memory.

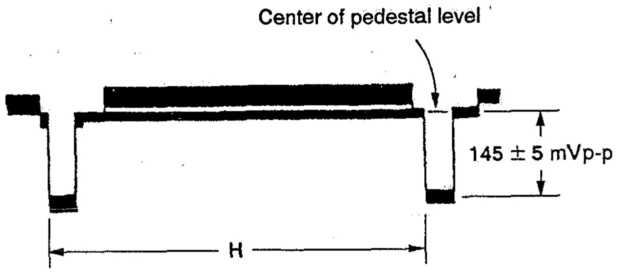


Fig. 8-19.

8-2-14. Setup Adjustment (VC-95 Board)

Subject	All black (cover lens with black cap)
Measurement Point	Pin (A8)(CAM Y) of check point array or pin ①(Y OUT) of CN307
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	10 (SET UP)
Specified Value	15 ± 5 mV

Note: 1) and 2) are steps taken to reduce noise.

Adjusting method:

1) Select the adjustment page F and the address 0D (SHP LEVEL) with the adjustment remote controller, and enter FF as the adjustment data after making a note of the adjustment data for this address.
2) Set the address 18 (MAX GAIN) with the adjustment remote controller, and enter 00 as the adjustment data after making a note of the adjustment data for this address.
3) Set the adjustment address to 10 with the adjustment remote controller.
4) Change the adjustment data with the adjustment remote controller to set the setup level to 15 ± 5 mV.
5) Set the adjustment address to 0D and enter the adjustment data recorded in 1).
6) Set the adjustment address to 18 and enter the adjustment data recorded in 2).
7) Change the adjustment address to store the adjustment data in the memory.

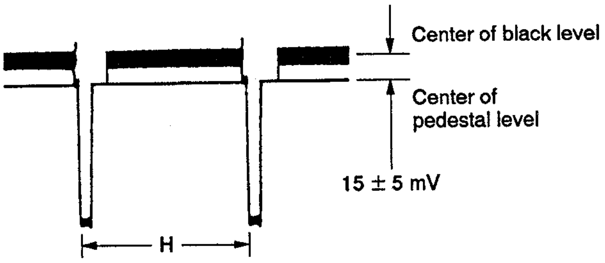


Fig. 8-20.

8-2-15. White Clip Adjustment (VC-95 Board)

Subject	Color var chart standard picture frame
Measurement Point	Pin (A8)(CAM Y) of check point array or pin ①(Y OUT) of CN307
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	15 (WHITE CLIP)
Specified Value	420 ± 10 mV

Adjusting method:

1) Select the adjustment page F and the adjustment address 0E with the adjustment remote controller, and make a note of the adjustment data for this address.
2) Set the adjustment data to FF with the adjustment remote controller. (Y level is maximum.)
3) Set the adjustment address to 15 with the adjustment remote controller.
4) Change the adjustment data with the adjustment remote controller to set the white clip level to 420 ± 10 mV.
5) Set the adjustment address to 0E and enter the adjustment data recorded in 1).
6) Change the adjustment address to store the adjustment data in the memory.

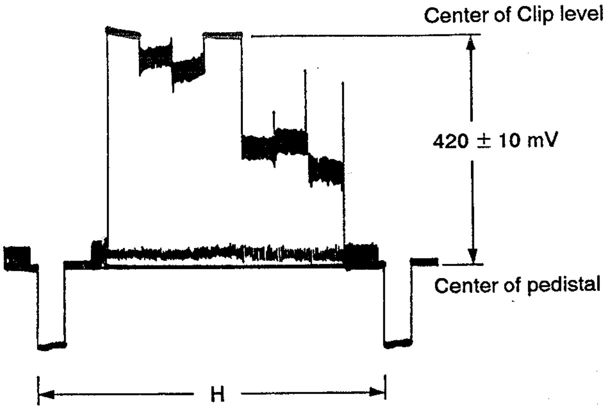


Fig. 8-21.

8-2-16. Y Level Adjustment (VC-95 Board)

Subject	Color bar chart standard picture frame
Measurement Point	Pin Ⓐ8(CAM Y) of check point array or pin ① (Y OUT) of CN307
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	0E (Y LEVEL)
Specified Value	330 ± 5 mV

Adjusting method:

1) Select the page 5 and the address 00 with the adjustment remote controller and set the data to 01.
2) Select the adjustment page F and the adjustment address 0E.
3) Change the adjustment data with the adjustment remote controller to set the Y signal level to 330 ± 5 mV.
4) Change the adjustment address to store the adjustment data in the memory.

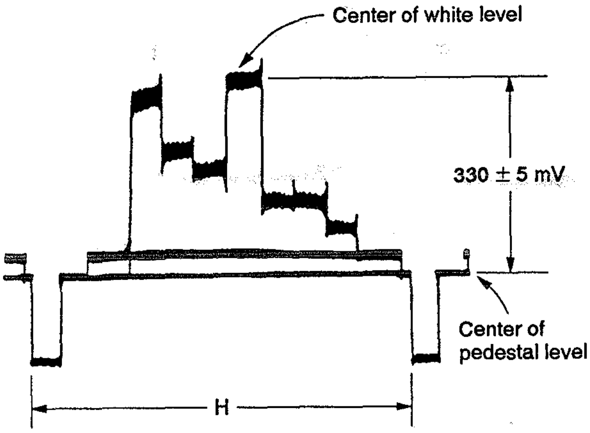


Fig. 8-22.

8-2-17. Max. Gain Adjustment (VC-95 Board)

Subject	Color bar chart standard picture frame
Filter	ND filters 1.0 (two) and 0.3 (two)
Measurement Point	Pin Ⓐ8(CAM Y) of check point array or pin ① (Y OUT) of CN307
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	18 (MAX GAIN)
Specified Value	170 ± 5 mV

Adjusting method:

1) Cover the lens with the ND filter 2.6 (1.0+1.0+0.3+0.3).
2) Select the adjustment page F and the adjustment address 18 with the adjustment remote controller.
3) Change the adjustment data with the adjustment remote controller to set the Y signal level to 170 ± 5 mV.
4) Change the adjustment address to store the adjustment data in the memory.

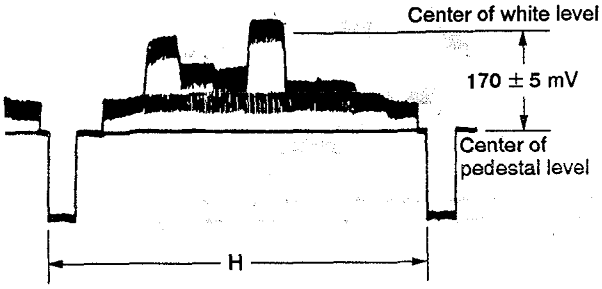


Fig. 8-23.

8-2-18. H Aperture Adjustment (VC-95 Board)

Subject	Color bar chart standard picture frame
Measurement Point	Pin ① (Y OUT) of CN307
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	0D (SHP LEVEL)
Specified Value	60 ± 5 mV

Adjusting method:

1) Focus the camera and set the aperture level (lower peak between green and white) to maximum.
2) Select the page 5 and address 00 with the adjustment remote controller and set the data to 01.
3) Select the adjustment page F and the adjustment address 0D.
4) Change the adjustment data to set the lower peak between green and white to 60 ± 5 mV.
5) Change the adjustment address to store the adjustment data in the memory.

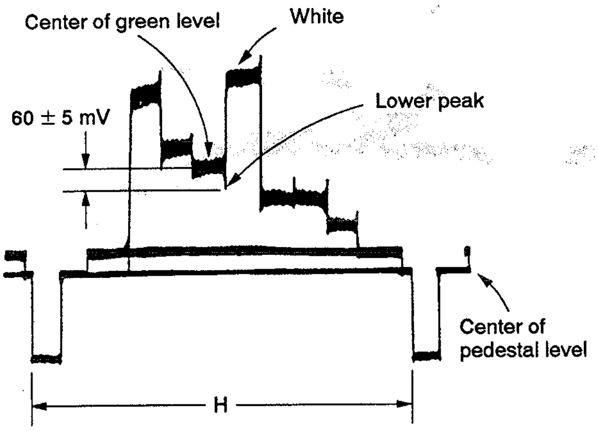


Fig. 8-24.

8-2-19. Chroma Level Adjustment (VC-95 Board)

Subject	Color bar chart standard picture frame
Measurement point	Pin (A7) (WB-G) of check point array
Measuring instrument	Oscilloscope
Adjustment page	F
Adjustment address	11 (C LEVEL)
Specified value	320 ± 20 mV

Adjusting method:

1) Select the page 5 and the address 00 with the adjustment remote controlle and set the data to 01
2) Select the adjustment page F and the adjustment address 11.
3) Change the adjustment data with the adjustment remote controller to set the WB-G signal level to 320 ± 20 mV.
4) Change the adjustment address to store the adjustment data in the memory.

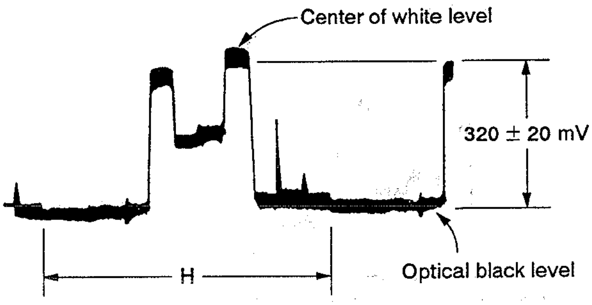


Fig. 8-25.

8-2-20. Burst Level Adjustment (VC-95 Board)

Subject	All black (cover lens with black cap)
Measurement Point	Pin (A10) (CAM C) of check point array or pin ③ (C OUT) of CN307
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	17 (BURST LEVEL)
Specified Value	140 ± 5 mVp-p

Adjusting method:

1) Select the adjustment page F and the adjustment address 17 with the adjustment remote controller.
2) Change the adjustment data with the adjustment remote controller to set the burst level to 140 ± 5 mVp-p.
3) Change the adjustment address to store the adjustment data in the memory.

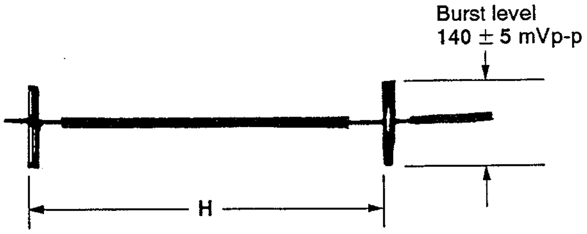


Fig. 8-26.

8-2-21. Pre- White Balance Adjustment (Method Using Vectorscope)

Subject	White pattern standard picture frame
Measurement Point	Video input/output terminals
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	05 (R GAIN) 04 (B GAIN)
Specified Value	The center of the white luminance point is within a circle with a diameter of 1 mm centered around the origin.

Adjusting method:

1) Select the adjustment page F and the adjustment address 05 with the adjustment remote controller.
2) Change the adjustment data with the adjustment remote controller to match the white luminance point with the origin.
3) Set the adjustment address to 04.
4) Change the adjustment data to match the white luminance point with the origin.
5) Repeat steps 1) through 4).
6) Change the adjustment address to store the adjustment data in the memory.

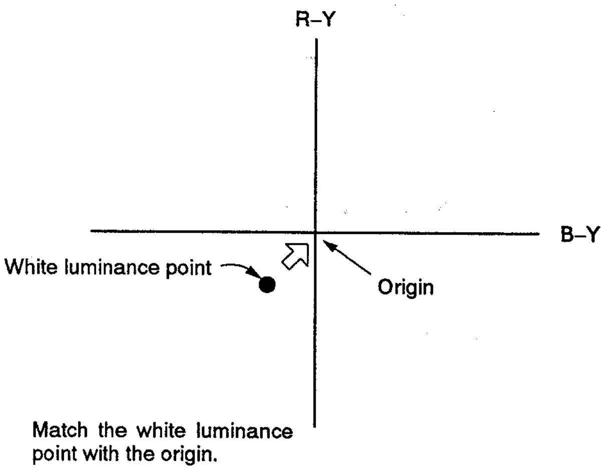


Fig. 8-27.

8-2-22. Pre- White Balance Adjustment (Method Using Oscilloscope) (VC-95 Board)

Subject	White pattern standard picture frame
Measurement Point	Pin (A10) (CAM C) of check point array or pin ③ (C OUT) of CN307
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	05 (R GAIN) 04 (B GAIN)
Specified Value	Minimum chroma signal amplitude.

Adjusting method:

1) Select the adjustment page F and the adjustment address to 05 with the adjustment remote controller.
2) Change the adjustment data with the adjustment remote controller to minimize the chroma signal amplitude.
3) Set the adjustment address to 04.
4) Change the adjustment data to minimize the croma signal amplitude.
5) Repeat steps 1) through 4).
6) Change the adjustment address to store the adjustment data in the memory.

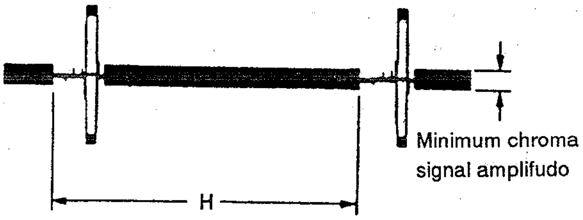


Fig. 8-28.

8-2-23. Color Reproduction Adjustment (Method Using Vectorscope)

Subject	Color bar chart standard picture frame
Measurement Point	Video input/output terminals
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	09 (R–Y GAIN) 0A (B–Y GAIN) 0B (R–Y HUE) 0C (B–Y HUE)
Specified Value	All color luminance points are within color reproduction frame. (⊞)

Note: Confirm that “Burst Level Adjustment” and “Pre- White Balance Adjustment” have been completed.

Adjusting method:

1) Adjust the phase and gain of the vectorscope to set the burst luminance points to the designated position on the color reproduction frame (⊞).
2) Select the page 5 and the address 00 with the adjustment remote controller and set the data to 01.
3) Select the adjustment page F.
4) Change the adjustment data at the various adjustment addresses using the adjustment remote controller until all color luminance points are within the color reproduction frame.
5) Change the adjustment address to store the adjustment data in the memory.

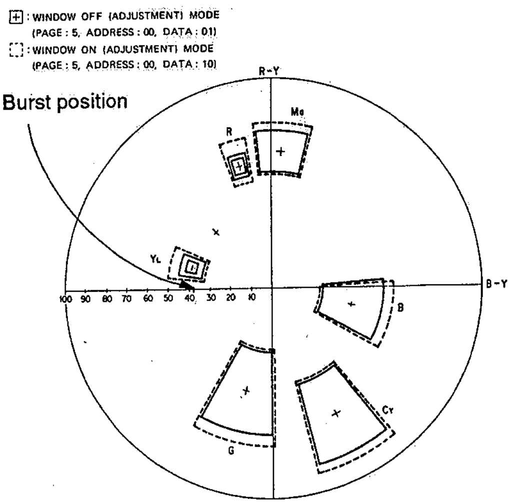

⊞ : WINDOW OFF (ADJUSTMENT) MODE
(PAGE : 5, ADDRESS : 00, DATA : 01)
⬚ : WINDOW ON (ADJUSTMENT) MODE
(PAGE : 5, ADDRESS : 00, DATA : 10)
R-Y
Burst position
Mg
R
YL
B-Y
B
G
CY
100 90 80 70 60 50 40 30 20 10

Fig. 8-29.

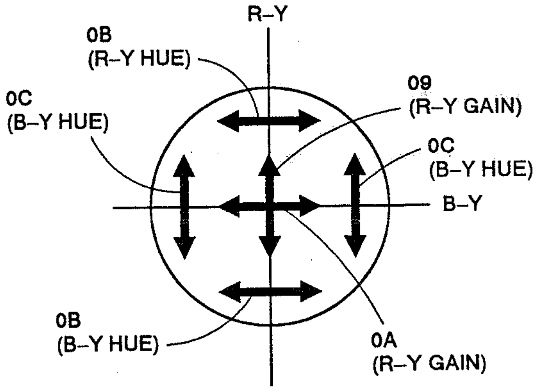

R–Y
0B
(R–Y HUE)
0C
(B–Y HUE)
09
(R–Y GAIN)
0C
(B–Y HUE)
B–Y
0B
(B–Y HUE)
0A
(R–Y GAIN)

Fig. 8-30. Adjustment address and direction of luminance point movement

8-2-24. Color Reproduction Adjustment (Method Using Oscilloscope)

Preeparation:

1) Select the page 5 and the address 00 with the adjustment remote controller and set the data to 01.

1. Gain adjustment (VC-95 board)

Subject	Color bar chart standard picture frame
Measurement Point	Pin Ⓐ10 (CAM C) of check point array or pin ③ (C OUT) of CN307
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	09 (R–Y GAIN) 0A (B–Y GAIN)
Specified Value	Red level: 221 ± 15 mVp-p Yellow level: 147 ± 11 mVp-p

Note: Confirm that "Indoor White Balance Adjustment" is completed.

Adjusting method:

1) Select the adjustment page F with the adjustment remote controller.
2) Set the adjustment address to 0A with the adjustment remote controller and set the adjustment data to 80.
3) Set the adjustment address to 0B and set the adjustment data to 80.
4) Set the adjustment address to 0C and set the adjustment data to 60.
5) Set the adjustment address to 09 and change the adjustment data to set the chroma signal "red" level to 221 ± 15 mVp-p.
6) Set the adjustment address to 0A and change the adjustment data to set the chroma signal "yellow" level to 147 ± 11 mVp-p.
7) Repeat steps 5) and 6).
8) Change the adjustment address to store the adjustment data in the memory.
9) Perform "Hue Adjustment".

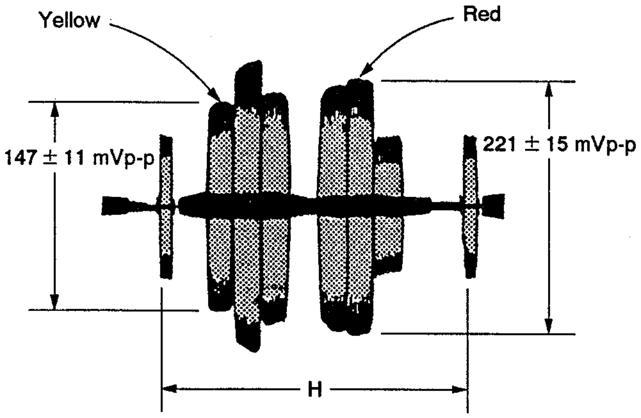


Fig. 8-31.

2. Hue adjustment (VC-95 board)

Subject	Color bar chart standard picture frame
Measurement Point	CH1(X): Pin ㉚ of MX-10 board (B–Y) CH2(Y): Pin ㉛ of MX-10 board (B–Y)
Measuring Instrument	Oscilloscope (X-Y mode)
Adjustment Page	F
Adjustment Address	0B (R–Y HUE) 0C (B–Y HUE)
Specified Value	Various color luminance points within color reproduction frame.

Note: Make sure that "Indoor White Balance Adjustment" is completed.

Adjusting method:

1) Match the "black" luminance point on the oscilloscope with the origin of the color reproduction frame.
2) Select the adjustment page F with the adjustment remote controller.
3) Change the adjustment data at adjustment addresses 0B and 0C with the adjustment remote controller to bring the various color luminance points into the color reproduction frame.
4) Check the hue reproduced on the monitor TV and fine adjust the adjustment data at adjustment addresses 0B and 0C if necessary.
5) Set the oscilloscope to the normal mode and connect it to Pin ③ of CN307 and confirm that the specified value of "1. Gain Adjustment" is satisfied. Change the data at the adjustment address 09 and 0A if the specified value is not met.
6) Change the adjustment address to store the adjustment data in the memory.

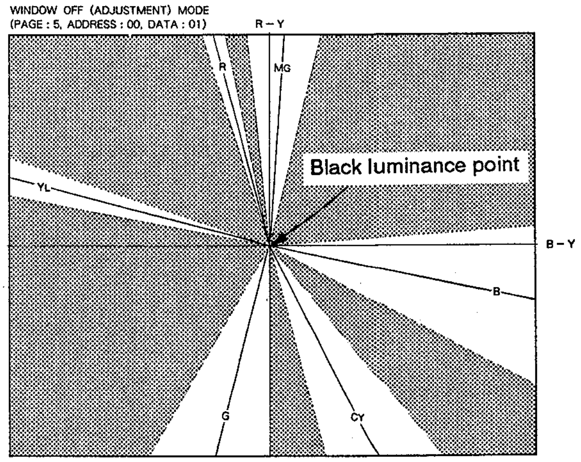

WINDOW OFF (ADJUSTMENT) MODE
(PAGE : 5, ADDRESS : 00, DATA : 01)
R – Y
R
MG
YL
Black luminance point
B – Y
B
G
CY

Fig. 8-32.

8-2-25. AE OFFSET adjustment (VC-95 board)

Subject	All back (Cover lens with a black cap.)
Measurement point	CN655
Measuring instrument	AF microcomputer data reading jig
Adjustment page	F
Adjustment address	1E (AE OFFSET)
Specified value	Minimum value of 01 to 06

Adjusting Method:

1) Select adjustment page F and address EB with the adjustment remote controller, and set the adjustment data to 13.
   (IRIS CONT level indication mode setting.)
2) Select the adjustment address 1E.
3) Change the adjustment data until the indication on the AF microcomputer data reading jig is the minimum value in the range of 01 to 06.
4) Read the data (D_1) indicated on the AF microcomputer data reading jig.
5) Change the adjustment address to store the adjustment data in the memory.
6) Perform "Standard AE level and Program AE level adjustment."

8-2-26. Standard AE level and Program AE level adjustment (VC-95 board)

Subject	Color bar chart standard picture frame
Measurement point	CN655
Measuring instrument	AF microcomputer data reading jig
Adjustment page	F
Adjustment address	60 (IRIS REF NOR) 61 (IRIS REF PO) 62 (IRIS REF SP)
Specified value	$D_{60}-D_1 \geqq 59$

Note: Perform "AE OFFSET adjustment" before this adjustment to obtain D1.

Adjusting method:

1) Select the page 5 and the address 00 with the adjustment remote controller, and set the data to 01.
2) Select the adjustment page F and the adjustment address 60.
3) Read the indication on the AF microcomputer data reading jig and enter this data (D_{60}) into the adjustment address 60.
   ($D_{60}-D_1 \geqq 59$)
4) Convert D_{60} to decimal to obtain D_{60}'.
5) Obtain D_{61}' and D_{62}' by the following formula.
   $D_{61}'=D_{60}'-12$
   $D_{62}'=D_{60}'-12$
6) Convert D_{61}' and D_{62}' to hexadecimal and call respect values D_{61} and D_{62}.
7) Select the adjustment address 61 and 62, and enter the adjustment data D_{61} and D_{62} into respective addresses.
8) Change the adjustment address to store the adjustment data in the memory.

8-2-27. Auto White Balance Adjustment

Note: Be sure to first perform "Preset Adjustment" followed by "Auto White Balance Adjustment".

1. Preset adjustment (VC-95 board)

Subject	White pattern standard picture frame
Adjustment page	F
Adjustment address	90 (R3200 MSB), 91 (R3200 LSB) 92 (B3200 MSB), 93 (B3200 LSB) 94 (G3200 MSB), 95 (G3200 LSB)

Adjusting method:

1) Select the page 5 and the address 00 with the adjustment remote controller after turning the power OFF and ON, and set the data to 01.
2) Turn off the auto focus with FOCUS button, and wait at least for 5 seconds.
3) Select the adjustment page F and the adjustment address EE and set the adjustment data to 01. (3200k data fetch 1 mode setting)
4) Change the adjustment address to store 3200k data 1.
5) Select the adjustment address EE and set the adjustment data to 23. (3200K data fetch 2 mode setting)
6) Change the adjustment address to store 3200k data 2.
7) Confirm that the indicated data on the adjustment remote controller is changed, and that the indicated address is 95.
8) Select the adjustment address EE and set the adjustment data to 00.
9) Perform the following "Auto white balance adjustment".

2. Auto white balance adjustment

Subject	White pattern standard picture frame
Filter	Filter C14 for color temperature correction
Measuring instrument	Vectorscope
Measuring point	VIDEO IN/OUT terminal
Adjustment page	F
Adjustment address	01 (R CONT), 02 (B CONT)

Adjusting method:

1) Select the adjustment address EE and set the adjustment data to DO with the adjustment remote controller.
(WB DIRECT mode setting)
2) Cover the lans with C14 filter.
3) Change the adjustment data at the adjustment addresses 01 and 02 alternately with the adjustment remote controller to match the white luminance point with the specified point.
4) Select the adjustment address EE and set the adjustment data to 00.
5) Change the adjustment address to store the adjustment data in the memory.
6) Set HOLD switch of the adjustment remote controller to the off position and then set to the on position.

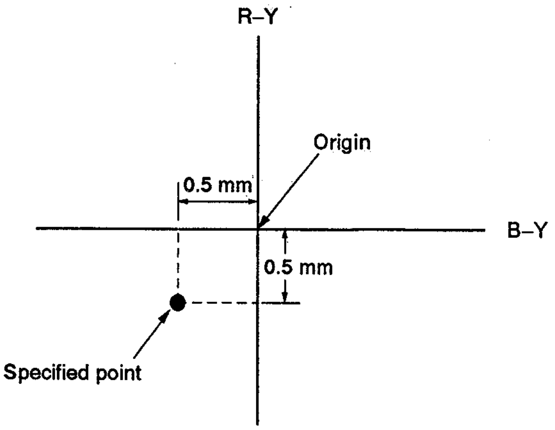


Fig. 8-27.

8-2-28. SHUTTER IN/OUT Adjustment (VC-95 Board)

Subject	White pattern standard picture frame
Filter	ND filter 0.4 and 0.1
Measuring point	CN655
Measuring instrument	AF microcomputer data reading jig.
Adjustment page	F
Adjustment address	97 (SHUTTER OUT) 96 (SHUTTER IN)

Adjusting method:

1) Select the page 5 and the address 00 and set the data 01 with the adjustment remote controller.
2) Select the adjustment address EB and set the adjustment data to 11.
   (Shutter data indication mode setting)
3) Change the adjustment address.
4) Set the shutter speed to 1/2000 with SHUTTER SPEED button.
5) Set up the portrait mode (👤) with PROGRAM AE button.
6) Cover the lens with ND filter 0.5 (0.4+0.1), and wait for 2 seconds.
7) Read the data (D97) indicated on the AF microcomputer data reading jig and enter adjustment address 97.
   (D97 shold be 80 to 86.)
8) Convert D97 to decimal to obtain D97′.
9) Obtain D96′ by the following formulla.
   D96′=D97′+10
10) Convert D96′ to hexadecimal, and enter it into the adjustment address 96.
11) Cover the lens and ND filter 0.5 with black cap, and wait for 2 seconds.
12) Confirm that the data indicated on the AF microcomputer data reading jig is FF.
13) Select the adjustment address EB and set the adjustment data to 00.
14) Change the adjustment address to store the adjustment data in the memory.

8-2-29. Indoor White Balance Check (VC-95 Board)

Subject	White pattern standard picture frame
Measurment Point	VIDEO IN/OUT terminal
Measuring Instrument	Vectorscope

Preparation:

1) Set HOLD switch of the adjustment remote controller to the off position.

Checking method:

1) Press the white balance button to select the indoor white balance mode. (☼ mark is displayed on LCD.)
2) Confirm that the center of the white luminance point is within the standard circle.
   Note: When using a vectorscope, adjust the gain and phase of the vectorscope so that burst luminance point moves to the burst position of the color reproduction frame.

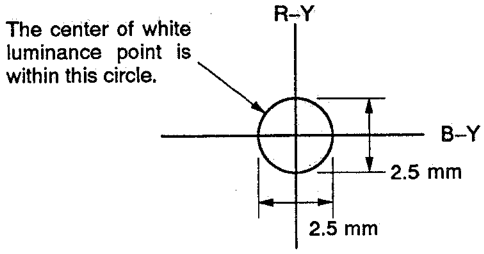


Fig. 8-34.

8-2-30. Outdoor White Balance Check (VC-95 Board)

Subject	White pattern standard picture frame
Filter	Filter C14 for color temperature correction
Measurement Point	VIDEO IN/OUT terminal
Measuring Instrument	Vector scope

Preparation:

1) Set HOLD switch of the adjustment remote controller to the off position.

Checking method:

1) Cover the lens with the C14 filter for color temperature correction.
2) Press the white balance button to select the outdoor white balance mode. (☀ mark is displayed on LCD.)
3) Confirm that the center of the white luminance point is within the standard circle.

   Note: When using a vectorscope, adjust the gain and phase of the vectorscope so that burst luminance point moves to the burst position of the color reproduction frame.

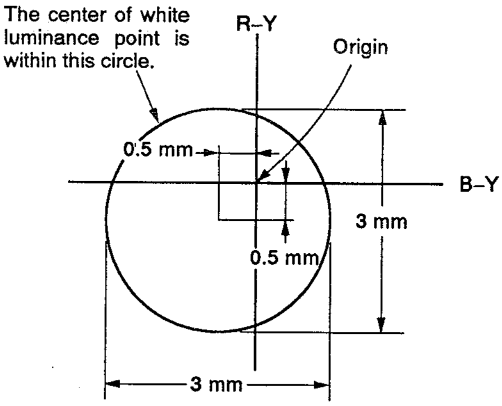


Fig. 8-.35.

8-2-31. Auto White Balance Check (VC-95 Board)

Subject	White pattern standard picture frame
Filter	Filter C14 for color temperature correction ND filters 1.0 and 0.3
Measurement point	VIDEO IN/OUT terminal
Measuring instrument	Vectorscope

Checking method:

1) Select the adjustment page F and the adjustment address EC with the adjustment remote controller and set the adjustment data to 02. (Auto white balance check mode setting)
2) Change the adjustment address to store the adjustment data in the memory.
3) Set HOLD switch of the adjustment remote controller to the off position.
4) Set the white balance to the auto white balance mode.
5) Cover the lens with the C14 filter and confirm that the white luminance point matches with the origin in about 5 seconds.
6) Confirm that the white luminance point is within the circle 1.
7) Remove the C14 filter.
8) Cover the lens with ND filter 1.3 (1.0+0.3) and wait for 5 seconds.
9) Confirm that the white luminance point is within the circle 2.
10) Set HOLD swith of the adjustment remote controller to the on position.
11) Select the adjustment page F and the adjustment address EC and set the adjustment data to 01.
12) Change the adjustment address to store the adjustment data in the memory.

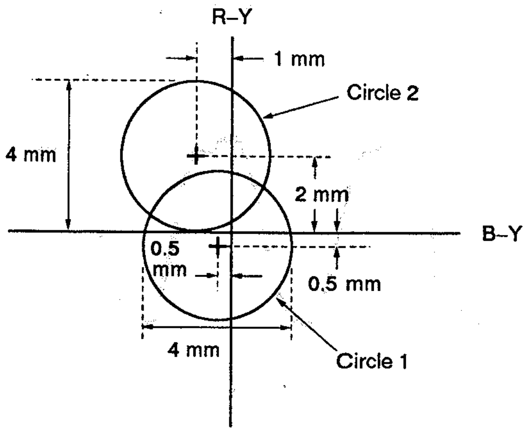


Fig. 8-36.

8-3. DIGITAL TITLER SYSTEM ADJUSTMENT

Preparations:
Open the cabinet (with the camera and video blocks connected state).

1. Open the VC-95 board.
2. Connect 12-pin extension cord between CN305 on the VC-95 board and W702 on the VA-68 board.
3. Connect 4-pin extension cord between CN307 on the VC-95 board and W701 on the VA-68 board.
4. Open the VA-68 board.
5. Open the CT-39 board.
6. Connect 20-pin extension cord between CN705 on the CT-39 board and CN703 on the VA-68 board.

8-3-1. 4FSC Frequency Adjustment (CT-39 Board)

Mode	E-E
Signal	Non-signal
Measurement point	Emitter of Q707
Measuring instrument	Frequency counter
Adjustment element	CT702
Specified value	3579545 ± 50 Hz

Connection:

1) Connect Pin ⑲ of IC704 and Pin ⑰ of CN705 (VIDEO 4.9V) with a jumper wire.
2) Connect Pin ㉝ of IC704 and Pin ⑰ of CN705 with 10 kΩ resistor.
3) Connect Pin ㉝ of IC704 and GND with 22 kΩ resistor.

Adjusting Method:

1) Set POWER switch to VTR position.
2) Set IN/OUT select switch to OUT position.
3) Adjust to 3579545 ± 50 Hz with CT702.
4) Set POWER switch to CAMERA position.

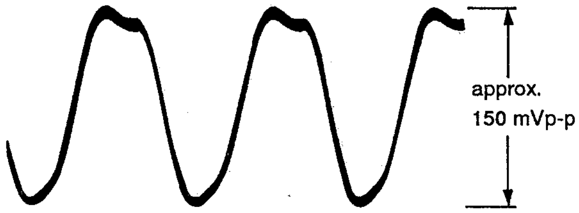


Fig. 8-37.

8-3-2. Controller Frequency Adjustment (CT-39 Board)

Subject	All white pattern
Measurement point	Pin ⑦ of IC707
Measuring instrument	Oscilloscope
Adjustment element	CT701
Specified value	1.5 ± 0.1 μsec

Adjusting Method:

1) Press DATA SCREEN button.
2) Press COLOR/MODE button untill T mark is displayed on the monitor TV screen.
3) Press TITLE 1 button.
4) Press MEMORY button.
5) Press COLOR/MODE button untill all white title is displayed on the monitor TV screen.
6) Adjust to 1.5 ± 0.1 μsec with CT701.

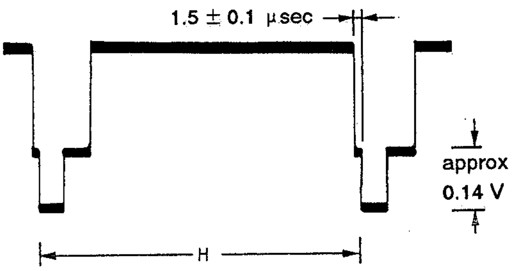


Fig. 8-38.

8-3-3. Title A/D Threashold Level Adjustment (CT-39 Board)

Mode	E-E
Measurement point	CH1: Pin ② of IC703 CH2: Pin ① of IC703
Measuring instrument	Oscilloscope (DC range, 0.2V/DIV)
Adjustment element	RV703
Specified value	0.225 ± 0.03V

Adjusting method:

1) Set POWER switch to VTR position.
2) Set IN/OUT select switch to IN position.
3) Input the staircase signal to VIDEO IN/OUT terminal.
4) Adjust the threashold level to 0.255V with RV703.
5) Disconnect the staircase signal.
6) Set IN/OUT select switch to OUT position.
7) Set POWER switch to CAMERA position.

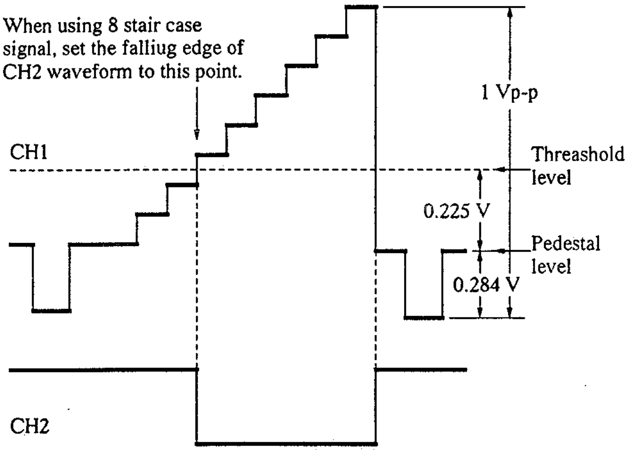

When using 8 stair case signal, set the falliug edge of CH2 waveform to this point.
CH1
1 Vp-p
Threashold level
0.225 V
Pedestal level
0.284 V
CH2

Fig. 8-39.

8-3-4. Title Chroma Phase Adjustment (CT-39 board)

Subject	All white pattern
Measurement point	VIDEO IN/OUT terminal
Measuring instrument	Vectorscope
Adjustment element	RV702
Specified value	285° ± 4°

Adjusting Method:

1) Press DATA SCREEN button.
2) Press COLOR/MODE button untill T mark is displayed on the monitor TV screen.
3) Press TITLE 1 button.
4) Press MEMORY button.
5) Press COLOR/MODE button untill a cyan title displayed on the monitor TV screen.
6) Adjust the cyan luminance point to 285° ± 4° with RV702.

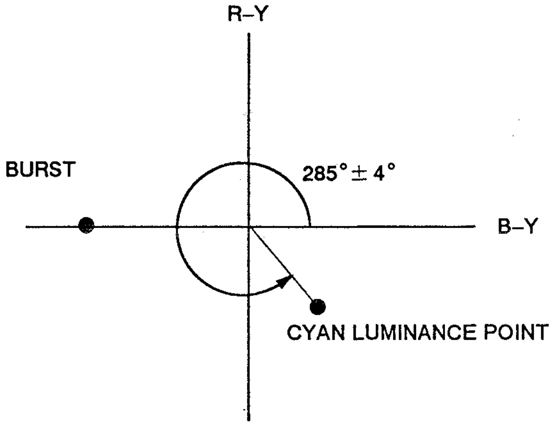

R–Y
BURST
285° ± 4°
B–Y
CYAN LUMINANCE POINT

Fig. 8-40.

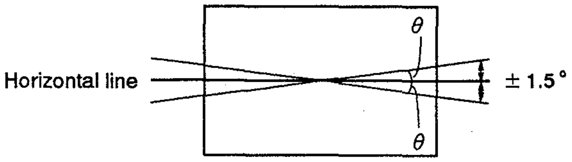
8-4. ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENT (TYPE A) (VF-27 BOARD)

8-4-1. Horizontal Tilt Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5NSP) Monoscope portion
Specified Value	See Fig. 8-41.

Adjustment method:

1) By turning RV904 (BRIGHT), adjust for a luminance level which provides appropriate visibility of the CRT screen.
2) Loosen the DY (deflection yoke) tightening nut.
3) Make the image horizontal by rotating DY.
4) Retighten the DY tightening nut. (Do not tighten excessively.)


θ
Horizontal line
± 1.5°
θ

Specified value: image orientation within ± 1.5° of horizontal line.

Fig. 8-41.

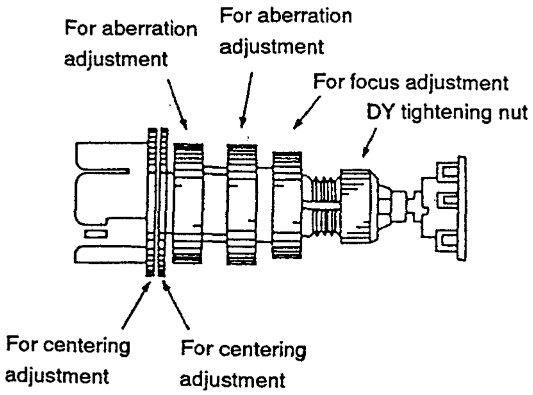

For aberration adjustment
For aberration adjustment
For focus adjustment
DY tightening nut
For centering adjustment
For centering adjustment

Fig. 8-42.

8-4-2. Centering Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5NSP) Monoscope portion
Specified Value	See Fig. 8-43.

Adjustment method:

1) Turn the centering adjustment rings to provide an image with even right, left, upper and lower margins. (See Fig. 8-43.)

Note: Since the centering position is affected by the earth magnetism, turn the equipment over 360° horizontally, and make adjustments at the orientation which exhibits median displacements of the image.

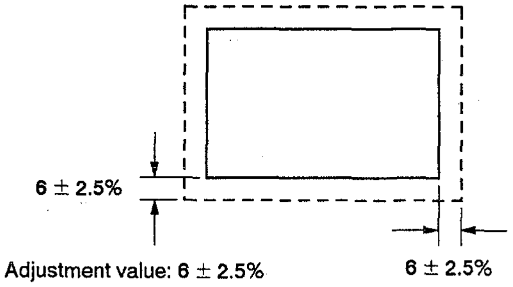

6 ± 2.5%
Adjustment value: 6 ± 2.5%
6 ± 2.5%

Fig. 8-43.

8-4-3. Focus Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5NSP) Monoscope portion

Adjustment method:

1) Adjust for optimum focus using the focus ring. (See Fig. 8-42.)

8-4-4. Aberration Adjustment

Mode	E-E
Signal	Dot pattern
Specified Value	See Fig. 8-44.

Adjustment method:

1) Use the aberration adjustment rings to adjust any trailing dots to within 2 times the dot diameter and any fan shaped aberrations to within the dot diameter.
2) If off center, repeat the Centering Adjustment.

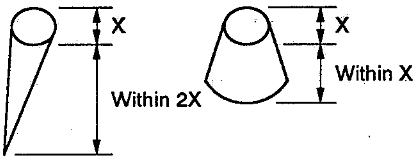


Fig. 8-44.

8-4-5. Horizontal Oscillation Frequency Adjustment (VF-27 Board)

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5NSP)
Measurement Point	Pin ⑤ of CN904
Measuring Instrument	Digital voltmeter or oscilloscope (DC range)
Adjustment Element	RV901
Specified Value	2.60 ± 0.05 Vdc

Adjustment method:

1) Adjust to 2.60 ± 0.05 Vdc using RV901.

8-4-6. Horizontal Amplitude Adjustment (VF-27 Board)

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5NSP) Monoscope portion
Adjustment Element	C911
Specified Value	6 ± 3%

Adjustment method:

1) Line up the upper and lower sections of the monoscope image with the upper and lower edges of the screen by rotating RV902.
2) Rotate RV904 to set the brightness to the normal level.
3) Short or open the pattern (A) of the H size adjustment capacitor (C911) to provide horizontal overscans of 6 ± 3% (total of left and right).
(See Fig. 8-51.)

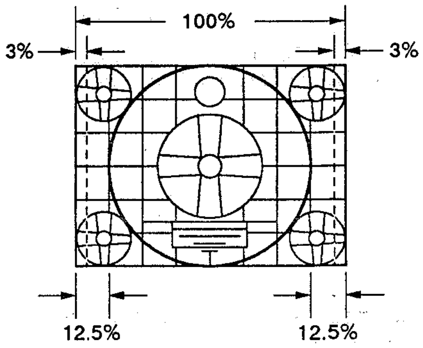
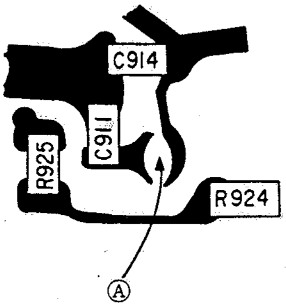


Fig. 8-45.



VF-27 Board
(conductor side)

A section	H size
Open	Large
Short	Small

Fig. 8-46.

8-4-7. Vertical Amplitude Adjustment (VF-27 Board)

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5NSP) Monoscope portion
Adjustment Element	RV902
Specified Value	6 ± 3%

Adjustment method:

1) By turning RV902, adjust vertical overscan to 6 ± 3% (upper and lower total).

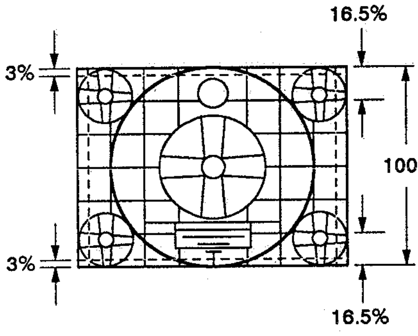


Fig. 8-47.

8-4-8. Brightness, Contrast Adjustments (VF-27 Board)

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5NSP) Monoscope portion
Adjustment Element	Brightness: RV904 Contrast: RV903

Adjustment method:

1) Adjust RV904 and RV903 alternately until the bright and dark areas of a gray scale are displayed correctly. (The bright areas should not be made too bright to avoid a fuzzy display of the cross-hatches in the monoscope circle, and the brightness of the dark areas should be such that discrimination between the darkest and second darkest area is possible.)

8-4-9. Horizontal Amplitude, Vertical Amplitude and Focus Checks

Values should conform to specifications given in 8-4-6. Horizontal Amplitude Adjustment and 8-4-7. Vertical Amplitude Adjustment. If not, readjust accordingly, and repeat 8-4-8. Brightness, Contrast Adjustments. In this case, focus needs to be checked. If the image is not clear, perform 8-4-3. Focus Adjustment and 8-4-4. Aberration Adjustment.

8-5. ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENT (TYPE B) (VF-26 BOARD)

8-5-1. Horizontal Tilt Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5NSP) Monoscope portion
Specified Value	See Fig. 8-49.

Adjustment method:

1) Adjust the volume array Ⓓ (BRIGHT) for appropriate brightness on CRT screen. (See Fig. 8-50.)
2) Loosen the DY (deflection yoke) tightening nut. (See Fig. 8-48.)
3) Make a picture horizontal by turning the DY.
4) Retighten the nut. (Do not tighten excessively.)

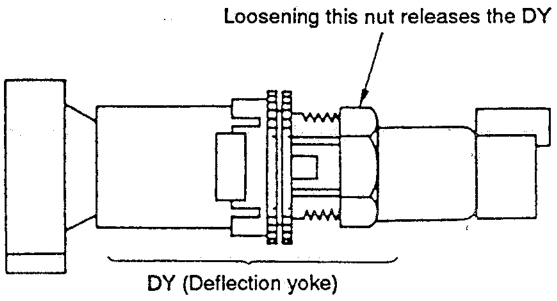
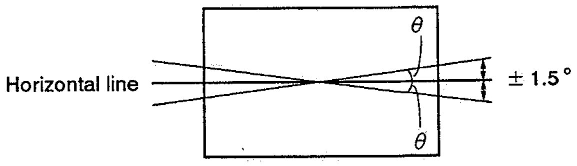


Fig. 8-48.



Specified value: Image orientation within ± 1.5° of horizontal line.

Fig. 8-49.

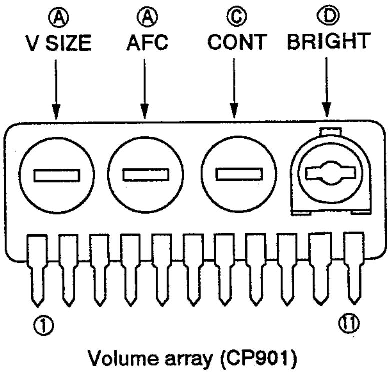


Fig. 8-50.

8-5-2. Centering Adjustment

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5NSP) Monoscope portion
Specified Value	See Fig. 8-52.

Adjustment method:

1) Turn the centering adjustment rings to provide an image with even right, left, upper and lower margins. (See Fig. 8-51.)

Note: Since the centering position is affected by the earth magnetism, turn the equipment over 360 ° horizontally, and make adjustments at the orientation which exhibits median displacements of the image.

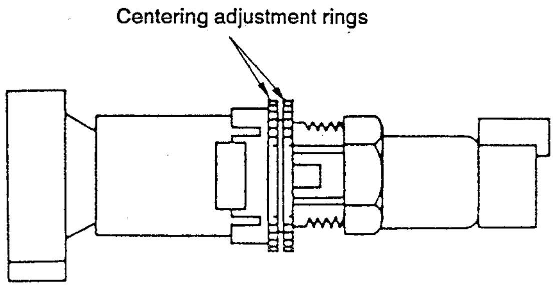


Fig. 8-51.

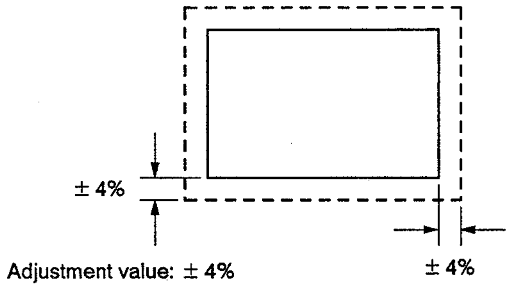


Fig. 8-52.

8-5-3. AFC Adjustment (VF-26 Board)

Mode	E-E or Camera standby
Signal	Color bar
Measurement Point	C915 ⊕ side
Measuring Instrument	Digital voltmeter or oscilloscope (DC range)
Adjustment Element	Volume array Ⓑ (AFC)
Specified Value	2.6 ± 0.2 Vdc

Adjustment method:

1) Adjust volume array Ⓑ (AFC) for 2.6 ± 0.2 Vdc. (See Fig. 8-50.)

8-5-4. Horizontal Amplitude Adjustment (VF-26 Board)

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5NSP) Monoscope portion
Adjustment Element	C905
Specified Value	6 ± 3%

Adjustment method:

1) Line up the upper and lower sections of the monoscope image with the upper and lower edges of the screen by rotating volume array Ⓐ (V SIZE). (See Fig. 8-50.)
2) Rotate volume array Ⓓ (BRIGHT) to set the brightness to the normal level.
3) Short or open the pattern [A] of the H size adjustment capacitor (C905) to provide horizontal overscans of 6 ± 3% (total of left and right).
(See Fig. 8-54.)

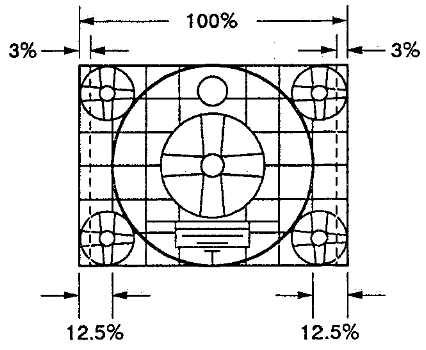
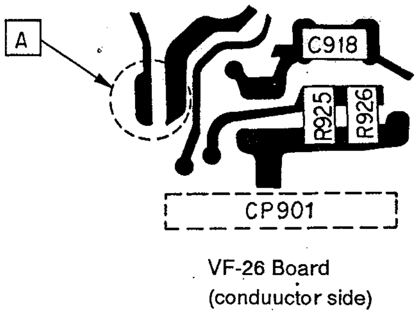


Fig. 8-53.



A section	H size
Open	Large
Short	Small

Fig. 8-54.

8-5-5. Vertical Amplitude Adjustment (VF-26 Board)

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5NSP) Monoscope portion
Adjustment Element	Volume array Ⓐ (V SIZE)
Specified Value	6 ± 3%

Adjustment method:

1) By turning volume array Ⓐ (V SIZE), adjust vertical overscan to 6 ± 3% (upper and lower total). (See Fig. 8-50.)

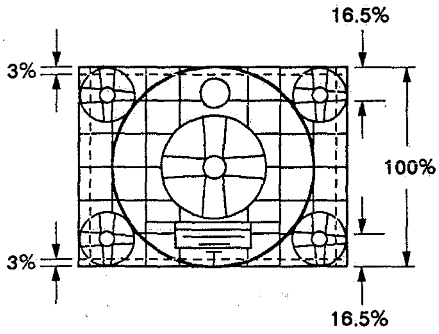


Fig. 8-55.

8-5-6. Focus Adjustment (VF-26 Board)

Mode	Playback
Signal	Alignment tape for checking operation (WR5-5NSP) Monoscope portion
Adjustment Element	RV901

Adjustment method:

1) Adjust to the best focus point with RV901.

8-5-7. Brightness, Contrast Adjustments (VF-26 Board)

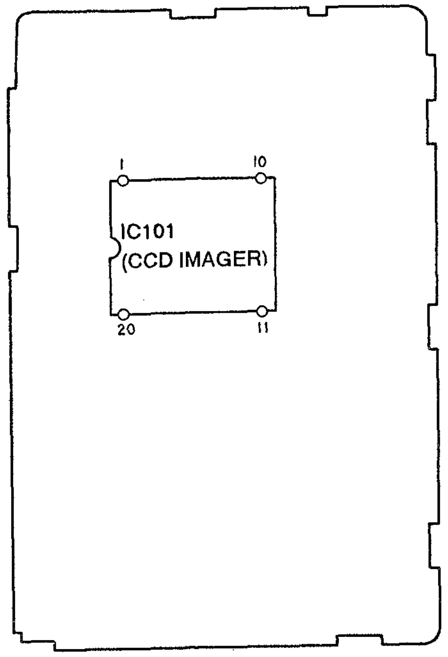
Mode	Playback
Signal	Alignment tape for checking operation (WR5-5NSP) Monoscope portion
Adjustment Element	Brightness: Volume array Ⓓ (BRIGHT) Contrast: Volume array Ⓒ (CONT)

Adjustment method:

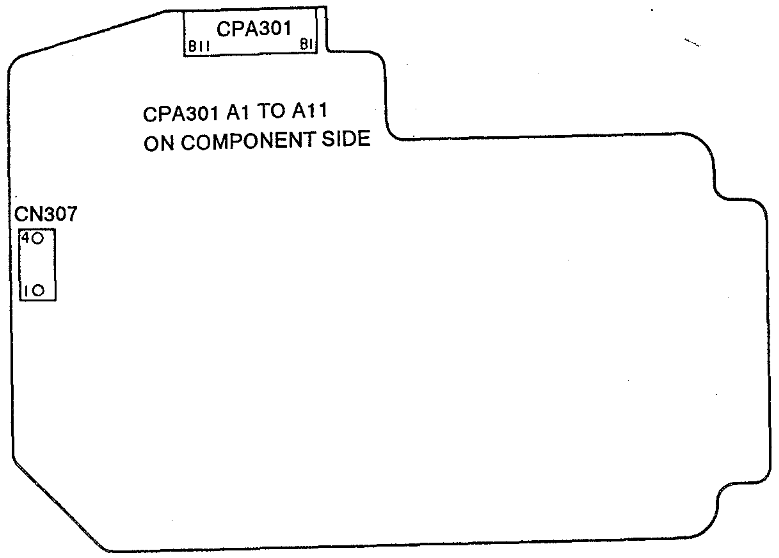
1) Adjust volume array Ⓓ (BRIGHT) and Ⓒ (CONT) alternately until the bright and dark areas of a gray scale are displayed correctly. (The bright areas should not be made too bright to avoid a fuzzy display of the cross-hatches in the monoscope circle, and the brightness of the dark areas should be such that discrimination between the darkest and second darkest area is possible.) (See Fig. 8-50.)

8-6. ARRANGEMENT DIAGRAMS FOR ADJUSTMENT PARTS

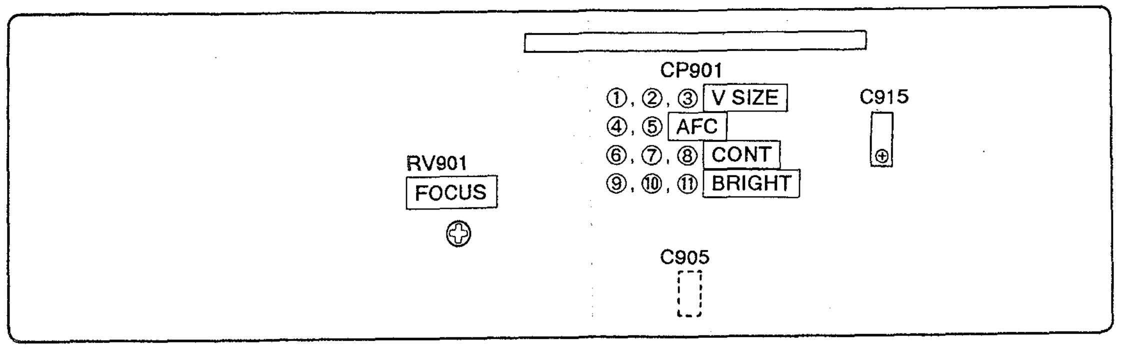
CD-59 BOARD (CONDUCTOR SIDE)


1
10
IC101
(CCD IMAGER)
20
11

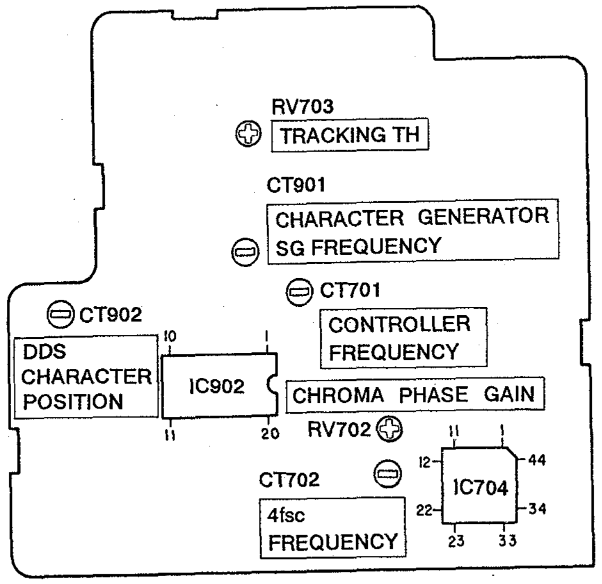
VC-95 BOARD (CONDUCTOR SIDE)


CPA301
B11
B1
CPA301 A1 TO A11
ON COMPONENT SIDE
CN307
40
10

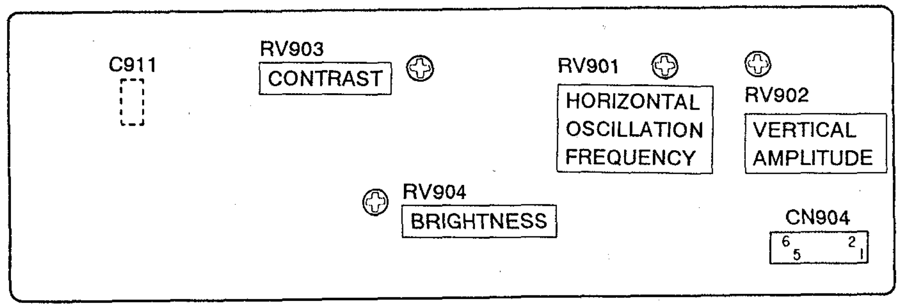
VF-26 BOARD (COMPONENT SIDE)


CP901
①, ②, ③ V SIZE
④, ⑤ AFC
⑥, ⑦, ⑧ CONT
⑨, ⑩, ⑪ BRIGHT
C915
RV901
FOCUS
C905

CT-39 BOARD (COMPONENT SIDE)
(Also illustarated on page 311.)


RV703
TRACKING TH
CT901
CHARACTER GENERATOR
SG FREQUENCY
CT701
CONTROLLER
FREQUENCY
CT902
DDS
CHARACTER
POSITION
10
1
IC902
11
20
CHROMA PHASE GAIN
RV702
11
1
12
44
IC704
22
34
23
33
CT702
4fsc
FREQUENCY

VF-27 BOARD (COMPONENT SIDE)


C911
RV903
CONTRAST
RV901
HORIZONTAL
OSCILLATION
FREQUENCY
RV902
VERTICAL
AMPLITUDE
RV904
BRIGHTNESS
CN904
6
2
5
1

-277-

SECTION 9
MECHANICAL ADJUSTMENTS

For Mechanical Adjustments
Refer to mechanical adjustment (8 mm Video MECHANICAL ADJUSTMENT MANUAL Ⅲ) manual for the adjustments and checks of mechanism section and the mechanical parts replacement. (9-972-732-11)
For setting of the track shift mode, however, refer to the following.

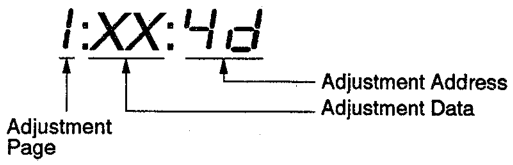
9-1. SETTING THE TRACK SHIFT MODE

Note: Camera part and video part should have been installed.

[Setting Method]
1) Set the adjustment commander to the HOLD ON side.
2) Press EDIT SEARCH + button once, and select page 1.
3) Select the adjustment adress 4D with FF or REW button.
4) Set to 3X with PLAY and STOP button. (Setting of track shift mode)

Note: 3X should be the number from 31 to 3F. (To display "3X" with PLAY and STOP button is simple to shift.)
(When HOLD OFF once after the setting and HOLD ON again, the display of the address data will be changed. To set the another mode with shifting, repeat the procedures from 3).)

5) Set to the HOLD OFF side in order to set the normal mode.



(1X: TEST 1
2X: TEST 2 ('CH Playback)
3X: TEST 3 (Shift mode)
4X: Shift release)

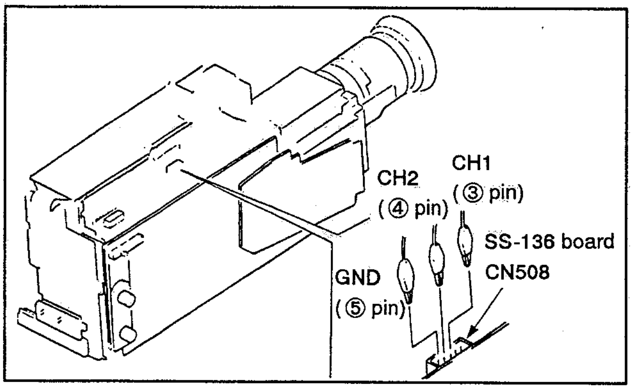


Fig.9-1.

9-2. PREPARATION FOR ADJUSTMENT

1) Clean the tape running surfaces (tape guide, drum, capstan shaft, pinch roller.)
2) Connect to the oscilloscope.
   CH1: SS-136 board CN508 pin ③ (PB RF)
   CH2: SS-136 board CN508 pin ④ (SWP)
3) Play back the tracking alignment tape (WR5-1NP) (8-967-995-02).
4) Check that the RF waveform of the oscilloscope is flat at both inlet and outlet sides. When not flat, make adjustment as follows. (Refer to Figs. 9-1 and 9-2.)

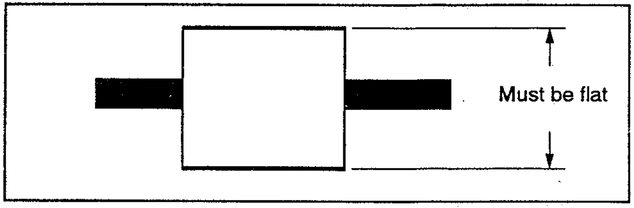


Fig.9-2.

– 280 – 282 leer

SECTION 10
VIDEO BLOCK ADJUSTMENTS

During the adjustments, see the arrangement diagram for adjustment parts from page 310.

10-1. PRE-ADJUSTMENT PREPARATIONS (VIDEO BLOCK)

Use the following measuring instruments for adjustment of the VTR block.

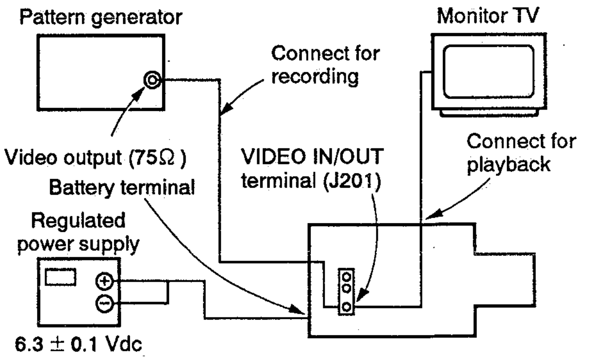
10-1-1. Equipment to be Used

1) Monitor TV
2) Dual trace oscilloscope of over 20 MHz band, incorporates delay mode. (Use 10:1 probe unless otherwise specified.)
3) Frequency counter
4) Pattern generator with video output terminal
5) Digital voltmeter
6) Audio generator
7) Audio level meter
8) Audio distortion meter
9) Audio attenuator
10) Regulated power supply
11) Alignment tapes
    Tracking adjustment (WR5-1NP)
        Parts Code: 8-967-995-02
    Video frequency characteristics adjustment (WR5-6N)*1
        Parts Code: 8-967-995-12
    Operation check
    (WR5-4NL)*2
        Parts Code: 8-967-995-51
    (WR5-5NSP)*3
        Parts Code: 8-967-995-42
    AFM stereo operation check (WR5-9NS)
        Parts Code: 8-967-995-23
    Note: *1 WR5-2N (8-967-995-11) is also available.
    *2 WR5-3NL (8-967-995-31) is also available.
    *3 WR5-4NSP (8-967-995-41) is also available.
12) Adjustment remote controller (Modification of RM-95)
13) Extension code (20 PIN)
        Parts Code: J-6082-063B

10-1-2. Connection of Equipment

Unless otherwise specified, adjustments are made with the measuring instrument connected as shown in Fig. 10-1.

- Camera/video power switch ···· VTR position
- IN/OUT select switch ············ IN position (REC mode)
  OUT position (PB mode)


Pattern generator
Monitor TV
Connect for recording
Connect for playback
Video output (75Ω)
VIDEO IN/OUT terminal (J201)
Battery terminal
Regulated power supply
6.3 ± 0.1 Vdc

When connecting the pattern generator and the monitor TV at the same time, set the IN/OUT select switch to OUT position and connect the monitor TV to the VIDEO IN/OUT terminal.
For the connection of the pattern generator refer to the diagram below.

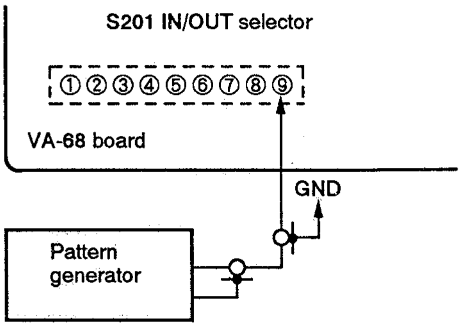

S201 IN/OUT selector
①②③④⑤⑥⑦⑧⑨
VA-68 board
GND
Pattern generator

Fig. 10-1.

10-1-3. Note on Adjustments

The video block adjustment can be made without the camera block except "Battery Down Adjustment" of system control adjustment and "Switching position adjustment" of servo system adjustment. Remove the following three connectors in case of removing the camera block.

1. 2 PIN connector on CAMERA DC/DC convertor.
2. CN307 (4-pin) on VC-95 board
3. CN305 (12-pin) on VC-95 board

The cabinet (L) is not required for the video block adjustment. When removing the cabinet (L), remove the following connector.

1. CN601 (8-pin) on VA-68 board.
2. CN401 (6-pin) on VA-68 board.
3. CN503 (6-pin) on SS-136 board.

The cabinet (R) is not required for the video block adjustment. When removing the cabinet (R), remove the following connector.

1. CN501 (14-pin) on VK-16 board.

There is no problem even if the CT-39 board is removed when adjusting the video circuit. However, when adjusting the CT-39 board (digital titler/character generator circuit), use the extension cord (20-pin).

10-1-4. Set-up for Adjustment

Since the video signal obtained from the pattern generator is used as the adjusting signal for the electrical adjustment, this video output signal should meet the required specifications. Connect an oscilloscope to the VIDEO IN/OUT terminal of the VA-68 board and make sure that the amplitude of the video SYNC signal is approximately 0.3V, that the amplitude of the video image is approximately 0.7V, that the burst signal amplitude is approximately 0.3V with flat characteristics, and that the signal level ratio between the burst signal and "Red" signal is 0.30:0.66. The video signal (color bars) used for VTR block electrical adjustment are shown in Fig. 10-2.

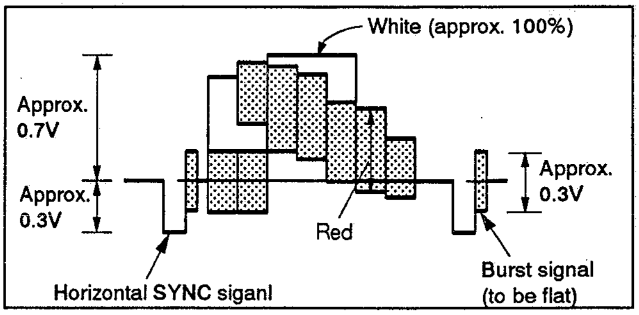


Fig. 10-2. Color bar signal of pattern generator

10-1-5. Alignment Tapes

The following alignment tapes are available.
Use the tape indicated in the signal column; however, in case there is no type indication in the signal column, use any tape for operation check.

Tape	REC mode	Type	Tape speed	Contents		Use
				Video area	PCM area	
Tracking WR5-1N	L	MP	SP	CH2: 1 MHz tape pass adjustment signal		Tape pass adjustment
Video freq. characteristics WR5-6N	L	MP	SP	RF sweep: 0 to 10 MHz Marker: 1, 3.58, 5.5, 7MHz		Frequency characteristics adjustment
Operation check (SP mode) WR5-4NSP or WR5-5NSP	L	MP	SP	• Video signal Color bar: 4 min. Monoscope: 4 min. • Audio signal (AFM) 400 Hz, 60% modulation	• Audio signal (PCM) Monoscope: 20 Hz 20sec 400 Hz 20sec 14 kHz 20sec Repeat four times. Color bar: 1 kHz 4 min.	Operation check
Operationn check (LP mode) WR5-4NL	L	MP	LP	• Video signal Color bar: 4 min. Monoscope: 4 min. • Audio signal (AFM) 400 Hz, 60% modulation		
AFM stereo operation check WR5-9NS	L	MP	SP	• Video signal Color bar: 4 min. Monoscope: 4 min. • Audio signal (AFM) Stereo section (color bar) L ch: 400 Hz, R ch: 1 kHz L+R: 1.5 MHz, ± 60 kHz DEV L–R: 1.7 MHz, ± 30 kHz DEV Bilingual section (monoscope) MAIN: 400 Hz (1.5 MHz, ± 60 kHz DEV) SUB: 1 kHz (1.7 MHz, ± 30 kHz DEV)	• Audio signal (PCM) 400 Hz: 8 min.	AFM stereo operation check

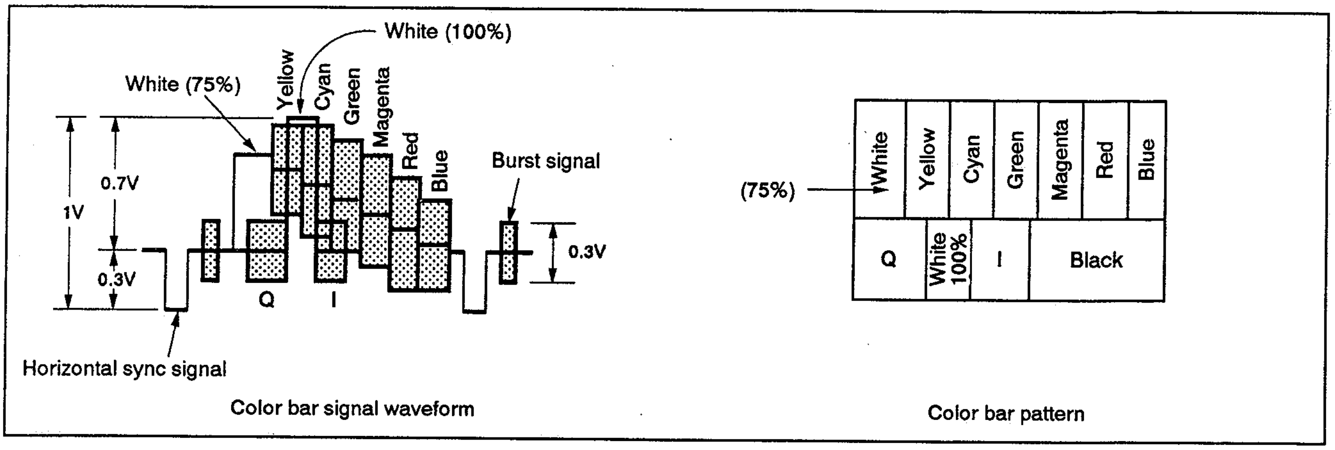
Note: Recording mode
L ········· Conventional mode
E ········· Hi8 (high band) mode

Tape type
MP ········ Particle type metal tape
ME ········ Evaporated type metal tape

Table 10-1.

75% color bar signal recorded on an alignment tape is shown in Fig. 10-3.

Note: Measured at VIDEO IN/OUT terminal.
(75Ω termination)


White (100%)
White (75%)
Yellow
Cyan
Green
Magenta
Red
Blue
Burst signal
0.7V
1V
0.3V
0.3V
Q
I
Horizontal sync signal
(75%)
White
Yellow
Cyan
Green
Magenta
Red
Blue
Q
White 100%
I
Black

Color bar signal waveform

Color bar pattern

Fig. 10-3. Alignment tape color bar signal

10-1-6. I/O Level and Impedance

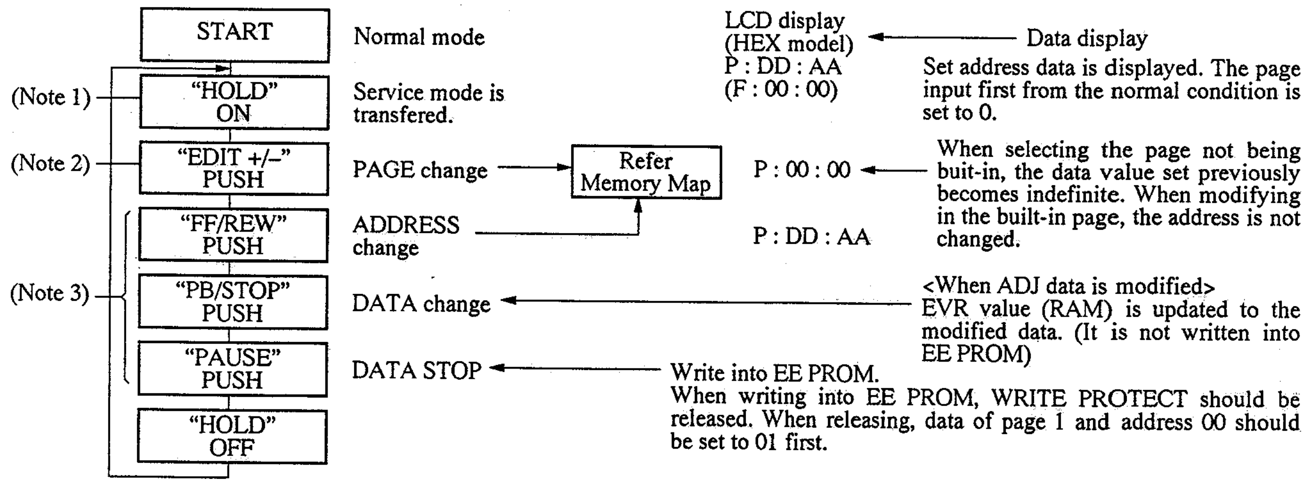
[I/O level and Impedance]

Video input/output Phone jack
Input signal: 1 Vp-p, 75Ω unbalanced, negative sync

Audio input/output Phone jack
Input level: –7.5 dBs (0 dBs=0.775 Vrms)
Input impedance: More than 47 kΩ
Output level: –7.5 dBs (at output impedance 47 kΩ)
Output impedance: More than 2.2 kΩ

10-1-7. Service Mode

[Tansfer method of the service mode with the adjustment remote controller]


START
Normal mode
(Note 1)
"HOLD" ON
Service mode is transfered.
(Note 2)
"EDIT +/–" PUSH
PAGE change
Refer Memory Map
"FF/REW" PUSH
ADDRESS change
(Note 3)
"PB/STOP" PUSH
DATA change
"PAUSE" PUSH
DATA STOP
"HOLD" OFF
LCD display
(HEX model)
P : DD : AA
(F : 00 : 00)
Data display
P : 00 : 00
P : DD : AA
Write into EE PROM.

Set address data is displayed. The page input first from the normal condition is set to 0.

When selecting the page not being buit-in, the data value set previously becomes indefinite. When modifying in the built-in page, the address is not changed.

<When ADJ data is modified>
EVR value (RAM) is updated to the modified data. (It is not written into EE PROM)

When writing into EE PROM, WRITE PROTECT should be released. When releasing, data of page 1 and address 00 should be set to 01 first.

Command name	Command function	Function Button with the adjustment remote controller
Page Up	Page +1	Edit Search +
Page Down	Page –1	Edit Search –
Direct Page Set	Set to direct page	Event Clear
Address Up	Address +1	Fast Forward
Address Down	Address –1	Rewind
Data Up	Data +1	Play Back
Data Down	Data –1	Stop
Store	Write data into EEPROM. RAM	Pause

[ADJUST, TEST MODE description]

MODE		PAGE/DATA/ADDRESS	Contents
ADJUST	Switching Position Adjustment	D : – – : 04 (high) D : – – : 05 (low)	Switching position adjustment See to page 295 for details
	Battery Down Adjustment	D : – – : 06 (Sensor value) D : – – : 07 (Set value)	Use for battery down adjustment See to page 294 for details
TEST MODE	Pass Adjustment Truck Shift	1 : 30 : 4D	Truck shift for pass adjustment Set to the data described left and set the playback mode.
	Emergency Inhibit	1 : 10 : 4D	Detection of emergency is inhibited. Even if battery is ended, power is not turned off. SP/LP is not automatically distinguished. Emergency detection except for TAPE/TOP·END is inhibited.
	Emergency Code	D : – – : 20~22 D : – – : 24~26	First emergency is displayed. Last emergency is displayed. (※ See to 1)
	RECOG SW Check	1 : – – : 3D 1 : – – : 3E	Mode switch position is displayed. RECOG SW ON OFF is displayed. (※ See to 2)
	Function SW Check	1 : – – : E8~ED	Pressing KEY is checked. (※ See to 3)
	Motor single check	3 : 10 : DD (Loading Ⓜ) 3 : 11 : DD (Drum Ⓜ) 3 : 12 : DD (Capstan Ⓜ)	Rotating in right direction, inverting, stopping of each motor can be separately controlled. • Loading Motor • Drum Motor (※ See to 4) • Capstan Motor
	Sensor check	3 : 21 : DD	The following sensor is input by performing A/D converting, and the A/D converted value can be confirmed. TOP sensor, End sensor, S REEL FG, T REEL FG, Thermistor for SWP correction DEW sensor. (※ See to 5)
	Reception contents check of wireless remote control	1 : – – : 1E and 1D	The received code contents of the remote control code can be confirmed. (※ See to 6)

※1 Emergency Code Check
With the adjustment remote controller

(The emergency code has the first emergency and last emergency. The last emergency side is changed when emergency is generated; the first emergency side records the only code generated first.)

		First	Last	
PAGE D	ADDRESS	20, 21	24, 25	⬅ Emergency code
PAGE D	ADDRESS	22	26	⬅ Mode when emergency is generated

Displayed ➡ Be sure to rewrite the address from 20 to 26 to data 00 after the operation.

(1) Emergency code list

Code		Emergency contents
20H, 24H	21H, 25H	
00	00	Normal mode
01	00	Loading Motor emergency.
02	00	Unloading, Reel emergency.
04	00	Steady, Reel emergency.
08	00	Capstan emergency.
00	01	Drum steady, FG emergency.
00	02	Drum steady, PG emergency.
00	21	Drum steady, FG emergency.
00	22	Drum steady, PG emergency.
00	41	Loading, Drum FG emergency.
00	42	Loading, Drum PG emergency.
00	81	Unloading, Drum FG emergency.
00	82	Unloading, Drum PG emergency.
——	——	Drum steady Phase emergency.

- EIn order to delete the contents of [the first and the last emergency], write with adjustment remote controller as follows.

Page 1	Address 00	Data 01

After that, write data 00 into each address.
After writing, return to

Page 1	Address 00	Data 00

(2) Mode code

Mode	Code	Mode	Code
STOP	20	EDIT S CUE	5A
FF	30	EDIT S REV	5B
REW	38	EDIT S STIL	5F
PB	60	+×1	62
CUE	64	–×1	63
REV	65	–STILL	79
STILL	70	+FRAME	76
REC	40	–FRAME	77
REC. P	41	+×2	66
SHUTTLE EDIT (+)	5A	–×2	62
SHUTTLE EDIT (–)	5B	LOADING	21
CAM STBY	41	UNLOADING	13
CAM REC	40	EJECTED	10
REC REV+	58	+SLOW	72
REC REV–	59	–SLOW	73

※2 RECOG SW Check

With the adjustment remote controller select page 1 and address 3D or 3E.

Page	Address	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
1	3D	MP-HG		ME/MP	REC PROOF		V MUTE	A MUTE JOG	VA PB MODE

"1"=REC inhibit
"1"=ME/ 0: MP
"1"=MPHG/ 0: Normal

Page	Address	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
1	3E	DEW			RP PB MODE	CASSETTE COMPART-MENT LOCK	MODE SW2	MODE SW1	MODE SW0

See to the following list

When locking the Cassette Compartment, "1"

- MODE SW CODE LIST

	Address 3E contents			Real port condition			Remark
Position	M SW2	M SW1	M SW0	M SW2	M SW1	M SW0	
EJECT	0	0	0	L	H	H	Cassette Compartment eject position
IA	0	0	1	H	H	H	Interval A
UNLOAD	0	1	0	L	L	H	Normal EJECT unloaded
IB	0	1	1	H	L	H	Interval B
STOP	1	0	0	H	L	L	STOP mode position
IC	1	0	1	H	H	L	Interval C
FWD	1	1	0	L	H	L	Pinch pressure welded
ID	1	1	1	L	L	L	Interval D
SHAKING HEAD POSITION	0	0	0	L	H	L	Shaking head position

☆ This mode releasing is turn off HOLD switch of the adjustment remote controller.

※3 **Switch check** (See to the previous page for reading code.)

With the adjustment remote controller:

Page 1	Address E8 to ED	Data Refer to table

Address	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
	K IN 7	K IN 6	K IN 5	K IN 4	K IN 3	K IN 2	K IN 1	K IN 0
E8 K OUT0	—	REMOTE ON/OFF	TITLE 2	TITLE 1	—	—	SHUTTER	AUTO LOCK
E9 K OUT1	—	STEREO	MEMORY	COLOR	DATA SCREEN	PUSH AUTO (FOCUS)	FOCUS	PROGRAM AE
EA K OUT2	—	SUB	EDIT (+)	EDIT (–)	FRAME	WHITE BALANCE	BACK LIGHT	—
EB K OUT3	—	STANDBY	PAUSE	RESET	REC	FADER	—	BUZZER
EC K OUT4	—	START/ STOP	PB	ZERO MEMORY	TIME	DATE	AGE	VTR
ED K OUT5	—	EDIT ON/OFF	REW	STOP	EJECT	FF	SLOW	CAM

☆ This mode releasing is turn off HOLD switch of the adjustment remote controller.

- Check the initial set value in shipping after the service, because EE PROM is monuted to VTR in this unit.
  D Page Initial set value in shipping (for this unit)

Address	Contens					Set value
00	Aging mode					00
01	Each flag area (destination/model/HEAD width 1×2 MUTE)					7A
02	VTR REC key acceptance authorization					03
03						- -
04	Switching position (low)					Adjustment value
05	Switching position (high)					Adjustment value
06	Battery A/D modification value					Adjustment value
07	Battery end set area					Adjustment value
10	SR data storage area	EDIT OFF	MP	HI8	LP	- -
11	SR data storage area	EDIT OFF	MP	HI8	SP	- -
12	SR data storage area	EDIT OFF	MP	NOR	LP	3E
13	SR data storage area	EDIT OFF	MP	NOR	SP	24
14	SR data storage area	EDIT OFF	ME	HI8	LP	- -
15	SR data storage area	EDIT OFF	ME	HI8	SP	- -
16	SR data storage area	EDIT OFF	ME	NOR	LP	3E
17	SR data storage area	EDIT OFF	ME	NOR	SP	24
18	Titler vertical position adjustment area JOG mode					08
19	Titler vertical position adjustment area NOR mode					06
1A	Titler horizontal position adjustment area playback mode					11
1B	Titler horizontal position adjustment area EE mode					11
1C	When SR data storage area EDIT is ON: Hi8 mode					- -
1D	When SR data storage area EDIT is ON: Normal mode					24
1E						- -
1F						- -
20	First generated emergency code (low) (First emergency)					00
21	First generated emergency code (high) (First emergency)					00
22	Mode code when emergency is generated first					00
23						- -
24	Last generated emergency code (low) (Last emergency)					00
25	Last generated emergency code (high) (Last emergency)					00
26	Mode code when emergency is generated last.					00

※4 In order to operate the motor singly

[Operation]

Write the following data with the adjustment remote controller into Page 3 Address DD.

Then the check of each motor is performed.

10H → Loading motor
11H → Drum motor
12H → Capstan motor

After the set of the above data, operation is performed by pressing the following keys. (When the operation is performed with the adjustment remote controller, set the HOLD switch to left and release the Service mode.)

FF key → Rotating in forward direction
REW key → Rotating in reverse direction
STOP key → Stop

Note) In this mode, operation is only performed on the normally loaded condition.

Note) The motor rotating speed is the normal rotating number. (Drum 30 Hz, Capstan SP mode speed, Loading normal speed.)

In order to release this mode, remove the adjustment remote controller and turn off the power.

※5 In order to read the A/D converted value (Sensor check)

[Operation]

With the adjustment remote controller.

Write PAGE 3 Address DD Data 21

The following address (PAGE 3) of the A/D converted value of each A/D port is displayed.

Address	Selecting value Contents
65	TOP sensor (light ON)
67	TOP sensor (light OFF)
64	END sensor (light ON)
66	END sensor (light OFF)
62	S-REEL FG
63	T-REEL FG
60	Thermistor (for SWP correction)
5F	DEW sensor

The voltage of A/D converting 1 step: 4.9÷256 ≒ 19 mV

※6 In order to check the reception contents of the wireless remote control

With adjustment remote controller, the received wireless remote control code is displayed to PAGE 1 Address 1E.

The wireless remote control code is only displayed while the code which the LANC code is shifted to right for 1 bit is pressed, and FF is displayed when the code is released.

The received category code of the wireless remote control is displayed to the upper 4 bit of PAGE 1 Address 1D.

(The description of the wireless remote control code is omitted in this chart.)

10-2. POWER SUPPLY ADJUSTMENT

10-2-1. VIDEO 4.9V Adjustment (SS-136 Board)

Mode	Recording
Signal	Unnecessary
Measurement Point	Pin ⑲ of CN507 (VIDEO 4.9V)
Measuring Instrument	Digital voltmeter
Adjusting Element	RV902
Specified Value	4.90 ± 0.05 Vdc

Adjusting method:

1) Adjust to 4.90 ± 0.05 Vdc with RV902.

10-2-2. Oscillation Frequency Adjustment (SS-136 Board)

Mode	Recording
Signal	Unnecessary
Measurement Point	Q903 collector
Measuring Instrument	Frequency counter
Adjusting Element	RV901
Specified Value	475 ± 5 kHz

Adjusting method:

1) Adjust to 475 ± 5 kHz with RV901.

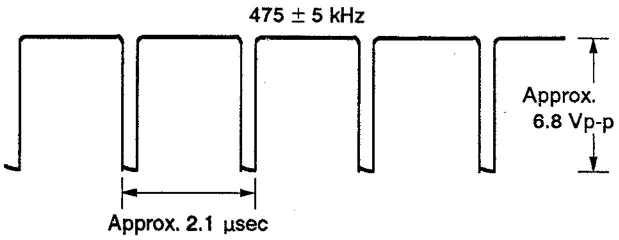


Fig. 10-4.

10-2-3. Power Supply Voltage Check (SS-136 Board)

Measuring Instrument	Digital voltmeter
SS 4.9V check.	
Measurement Point	Pin ① of CN506
Specified Value	4.90 ± 0.15 Vdc
AUDIO 4.9V check	
Measurement Point	Pin ⑦ of CN506
Specified Value	4.90 ± 0.15 Vdc
EVF 4.9V check	
Measurement Point	Pin ① of CN503
Specified Value	4.90 ± 0.15 Vdc
LM 5V check	
Measurement Point	Pin ⑮ of CN502
Specified Value	4.85 ± 0.15 Vdc

Checking method:

1) Each power supply voltage should satisfy the specified values at normal temperature and humidity.

10-3. SYSTEM CONTROL SYSTEM ADJUSTMENT

10-3-1. Battery Down Adjustment

Mode	CAMERA REC
Signal	Unnecessary
Adjustment Page	D
Adjustment Address	06

Connection:

1) Make this adjustment with MIC board, EVF board, and CAMERA block connected.
2) Connect the adjustment remote controller to the REMOTE terminal.
3) Connect the digital voltmeter so to measure the voltage of the regurated power supply unit connected to the battery terminal.

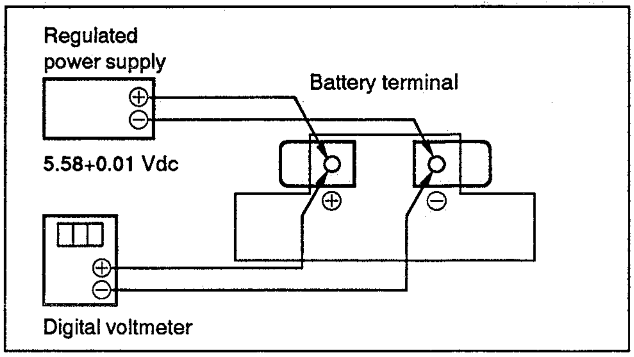
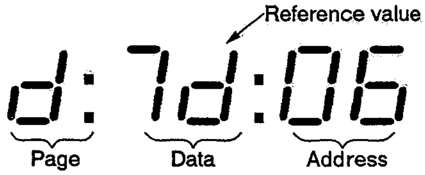


Fig. 10-5.

Adjusting method:

1) Set the POWER switch to CAMERA position.
2) Adjust the output voltage of the regurated power supply unit to be 6.3 ± 0.1 Vdc.
3) Set up the CAMERA REC mode.
4) Set the HOLD switch of the adjustment remote controller to the HOLD side.
5) Adjust the output voltage of the regurated power supply unit to be 5.58 ± 0.01 Vdc (battery terminal voltage).
6) Press once the EDIT SEARCH (+) button of the adjustment remote controller to select page 1.
7) Select address 00 with the adjustment remote controller and set the data to 01. (Release the protector.)
8) Press four times the EDIT SEARCH (–) button of the adjustment remote controller. (Set the adjustment page to D.)
9) Select address 06 and press the PAUSE button of the adjustment remote controller (Store the reference value in the memory.)



10) Turn off the POWER switch.

Checking method:
Remove the adjustment remote controller and check the following points. If the required conditions are not obtained, repeat the adjustments again.

1) Adjust the output voltage of the regulated power supply so that the digital voltmeter reading becomes 6.30 ± 0.01 Vdc. (VTR in camera recording mode)
2) Confirm that the ⧅ mark is not lit on the EVF (viewfinder) screen (TALLY lamp is lit).
3) Lower the output voltage of the regulated power supply so that the digital voltmeter reading becomes 5.66 ± 0.01 Vdc.
4) Confirm that the ⧅ mark and the TALLY lamp are flashing in approx. 1 sec intervals on the EVF screen. (⧅ mark should not be blinking.)
5) Lower the output voltage of the regulated power supply so that the digital voltmeter reading becomes 5.50 ± 0.01 Vdc.
6) Confirm that the flashing interval of the ⧅ mark and the TALLY lamp on the EVF screen becomes shorter, and that the VTR stops and the power is turned off.

10-3-2. Clock Accuracy Adjustment (FU-101 Board)

Note: Use a 10 : 1 probe for connecting the frequency counter.

Adjusting method:
1) Adjust to 512.000 ± 0.001 Hz with CT501.

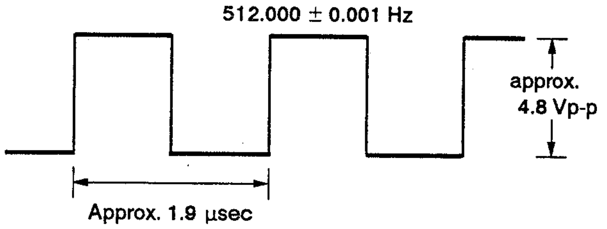


Fig. 10-6.

10-4. SERVO SYSTEM ADJUSTMENT

10-4-1. Switching Position Adjustment (SS-136 Board)

Mode	Playback
Signal	Alignment tape : Operation check (WR5-1NP)
Measurement Point	CH1: CN508 pin ④ (D SWP) CH2: CN508 pin ③ (PB RF)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	05 04
Specified Value	t=0+5 µsec

Adjusting method:
1) Set the HOLD switch of the adjustment remote controller to the HOLD side. (ADJUST MODE is set.)
2) Select page 1 and address 00 with the adjustment remote controller and set the data to 01. (Protector is released.)

Page
Data
Address
1:01:00

3) Press four times the EDIT SEARCH (–) button of the adjustment remote controller. (Adjustment page D is set.)
4) Change the data at address 05 (for coarse adjustment) and minimize "t".
5) Press the PAUSE button of the adjustment remote controller to store the data in the memory.
6) Change the data at address 04 (for fine adjustment) and adjust to t=0 ± 5 µsec.
7) Press the PAUSE button of the adjustment remote controller
8) Turn off the POWER switch.

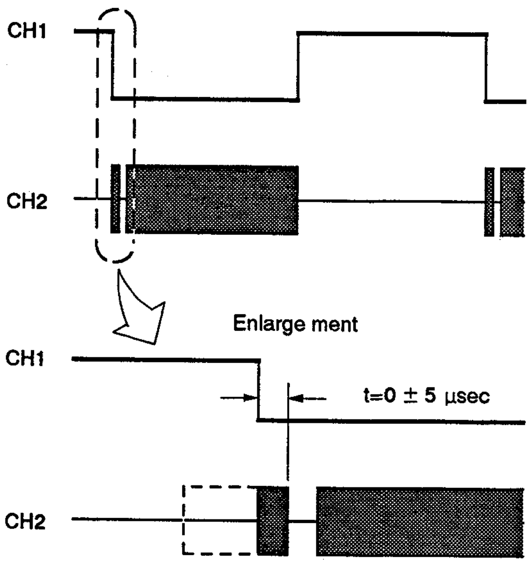


Fig. 10-7.

10-5. VIDEO BLOCK ADJUSTMENTS

The adjustment of the video system should in principle follow the adjustment procedure outlined below.
The color video signal supplied from the pattern generator is utilized as the video input signal for the video system adjustment in the recording mode. Make sure that the sync signal and the color burst signal match the specifications given in Set-up for adjustment, as shown in Fig. 10-2.

[Adjustment procedure]

1) Playback frequency characteristics adjustment
2) Crystal oscillator fo adjustment
3) REC EE level adjustment
4) IR adjustment
5) Chroma comb filter adjustment
6) Emphasis Y level adjustment
7) PB CCD input level adjustment
8) PB Y level adjustment
9) Y FM carrier frequency adjustment
10) Y FM deviation adjustment
11) Chroma emphasis fo adjustment
12) REC C RF level adjustment
13) REC Y level adjustment
14) REC ATF level checking

10-5-1. Playback Frequency Characteristics Adjustment (RP-77 Board)

1. CH1, CH2 adjustment

Note: The adjusting element for CH2 is shown in parentheses [ ].

Mode	Playback
Signal	Alignment tape: For frequency characteristics adjustment (WR5-6N)
Measurement Point	CH1: Pin ③ [Pin ③] of CN508 on SS-136 board EXT TRIG: Pin ④ of CN508 on SS-136 board
Measuring Instrument	Oscilloscope TRIG SLOPE: +, [–]
Adjusting Element	RV102 [RV101]
Specified Value	3.58 MHz level : 5.5 MHz level =4 : (3 ± 0.3)

Adjusting method:

1) Adjust RV102 [RV101] so that the ratio of the 3.58 MHz level to the 5.5 MHz level of the PB RF output waveform becomes 4: (3 ± 0.3) .

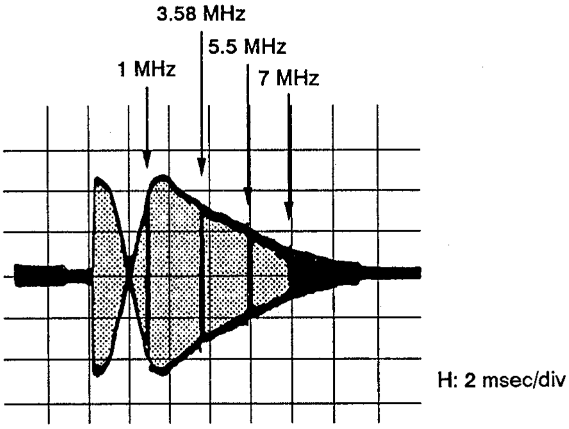


Fig. 10-8.

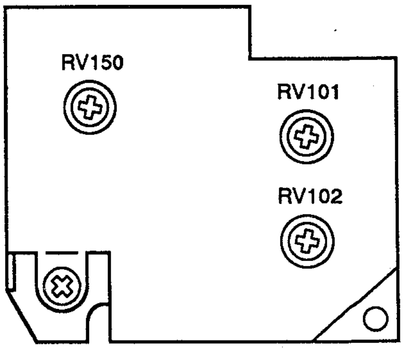


Fig. 10-9.

2. CH1' adjustment

Mode	Playback (CH1' playback mode)
Signal	Alignment tape: For frequency characteristics adjustment (WR5-6N)
Measurement Point	CH1: Pin ③ of CN508 on SS-136 board EXT TRIG: Pin ④ of CN508 on SS-136 board
Measuring Instrument	Oscilloscope TRIG SLOPE: -
Adjusting Element	RV150
Specified Value	3.58 MHz level : 5.5 MHz level =4 : (3 ± 0.3)

Adjusting method:

1) Connect the adjustment remote controller to REMOTE terminal (J901 on SW-175 board).
2) Set the HOLD switch of the adjustment remote controller to the on position.
3) Select the page 1 and the address 4D with the adjustment remote controller, and set the data to 20.
   (CH1' playback mode setting)
4) Adjust RV150 so that the ratio of the 3.58 MHz level to the 5.5 MHz level of the PB RF output waveform becames 4: (3 ± 0.3)
5) Remove the adjustment remote controller.

10-5-2. Crystal Oscillator fo Checking (VA-68 Board)

Mode	E-E
Signal	Color bar
Measurement Point	Pin ⑫ of IC203
Measuring Instrument	Frequency counter
Specified Value	3579545 ± 70 Hz

Checking method:

1) Confirm that the oscillation frequency at Pin ⑫ of IC203 is 3579545 ± 70 Hz.

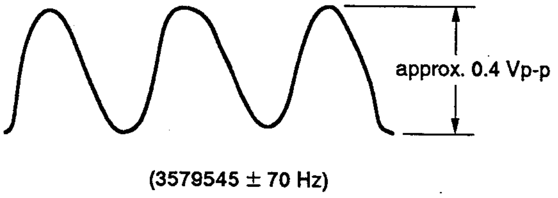


Fig. 10-10. Crystal oscillator fo adjustment

10-5-3. REC EE LEVEL Adjustment (VA-68 Board)

Mode	Recording
Signal	Color bar
Measurement Point	VIDEO IN/OUT terminal (J201)
Measuring Instrument	Oscilloscope
Adjusting Element	RV205
Specified Value	1.00 ± 0.025 Vp-p

Note: Terminate VIDEO IN/OUT terminal (J201) at 75Ω .

Adjusting method:

1) Adjust RV205 for 1.00 ± 0.025 Vp-p.

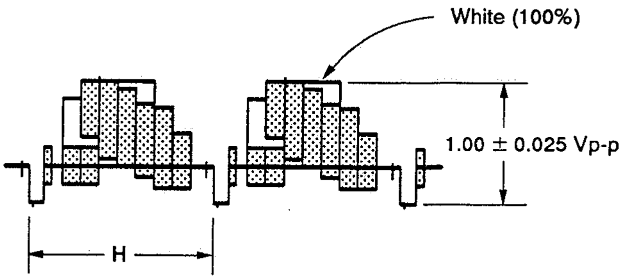


Fig. 10-11.

10-5-4. IR Adjustment (VA-68 Board)

Mode	E-E
Signal	Color bar
Measurement Point	Pin ⑦ of IC201
Measuring Instrument	Oscilloscope
Adjusting Element	RV201
Specified Value	Minimum red residual chroma component (80 mVp-p or less)

Connections:

1) Connect TP003 (Pin ⑭ of IC201) and TP007 (Pin (51) of IC201) with a jumper wire.

Adjusting Method:

1) Minimize the red residual chroma component with RV201.
2) After the adjustment, remove the jumper wire.

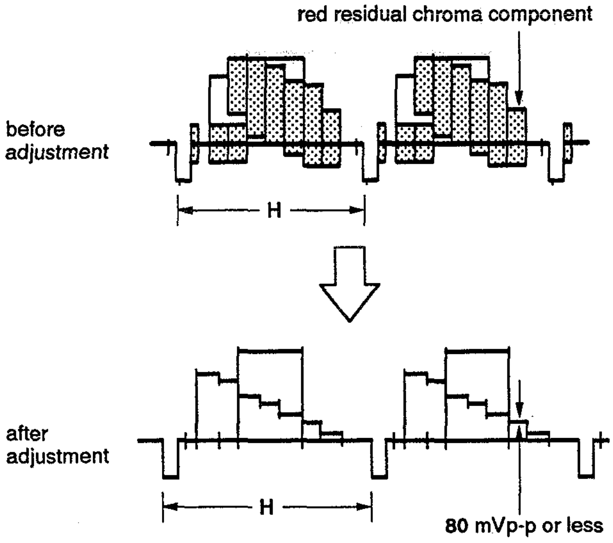

red residual chroma component
before adjustment
H
after adjustment
H
80 mVp-p or less

Fig. 10-12.

10-5-5. Chroma Comb Filter Adjustment (VA-68 Board)

Mode	Record
Signal	Color bar
Measurement Point	Pin ⑪ of IC201
Measuring Instrument	Oscilloscope
Adjusting Element	RV204 RV211
Specified Value	Minimum red residual chroma component (30 mVp-p or less)

Adjusting method:

1) Adjust RV204 and RV211 alternately and minimize the red residual chroma component.

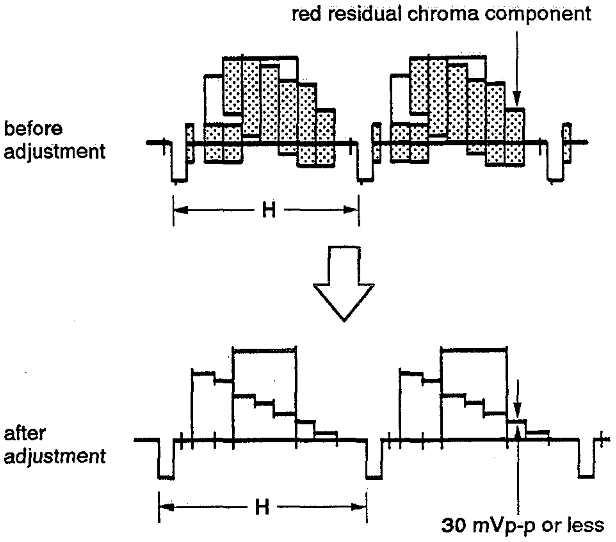

red residual chroma component
before adjustment
H
after adjustment
H
30 mVp-p or less

Fig. 10-13.

10-5-6. Emphasis Y Level Adjustment (VA-68 Board)

Mode	Recording
Signal	Color bar
Measurement Point	Pin ③ of IC201
Measuring Instrument	Oscilloscope
Adjusting Element	RV202
Specified Value	0.50 ± 0.025 Vp-p

Adjusting method:

1) Adjust RV202 for 0.50 ± 0.025 Vp-p.

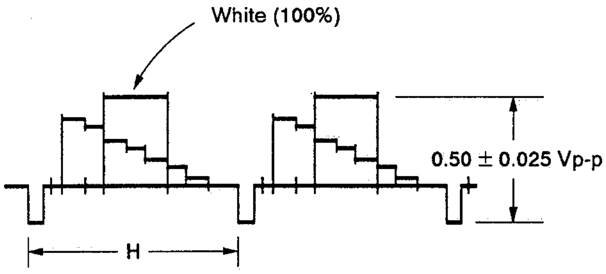


Fig. 10-14.

10-5-7. PB CCD Input Level Adjustment (VA-68 Board)

Mode	Playback
Signal	Alignment tape: For operation checking (WR5-5NSP) color bar section
Measurement Point	Pin ㉑ of IC201
Measuring Instrument	Oscilloscope
Adjusting Element	RV210
Specified Value	0.50 ± 0.025 Vp-p

Adjusting method:

1) Adjust RV210 for 0.50 ± 0.025 Vp-p.
2) Be sure to perform "PB Y level adjustment" after this adjustment.

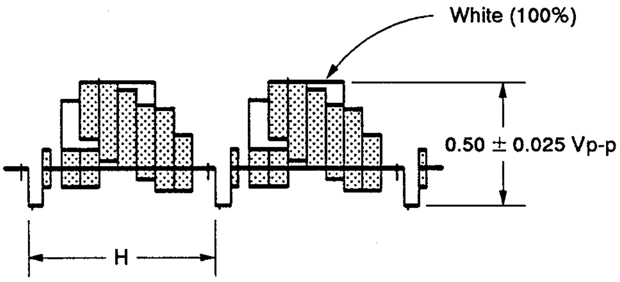


Fig. 10-15.

10-5-8. PB Y Level Adjustment (VA-68 Board)

Mode	Playback
Signal	Alignment tape: For operation checking (WR5-5NSP) Color bar section
Measurement Point	VIDEO IN/OUT terminal (J201)
Measuring Instrument	Oscilloscope
Adjusting Element	RV203
Specified Value	1.00 ± 0.05 Vp-p

Note: 1) Terminate VIDEO IN/OUT terminal (J201) at 75Ω.
2) Make sure that "PB CCD Input Level Adjustment" has been completed.

Adjusting method:

1) Adjust RV203 for 1.00 ± 0.05 Vp-p.

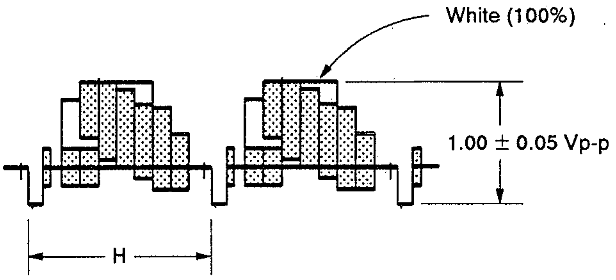


Fig. 10-16

10-5-9. Y FM Carrier Frequency Adjustment (VA-68 Board)

Mode	Recording
Signal	No signal
Measurement Point	R158 side terminal of RV101
Measuring Instrument	Frequency counter
Adjusting Element	RV207
Specified Value	4.38 ± 0.04 MHz

Adjusting method:

1) Adjust RV207 for 4.38 ± 0.04 MHz.
2) Perform "Y FM Deviation Adjustment".
3) Make this adjustment again after completing "Y FM Deviation Adjustment".

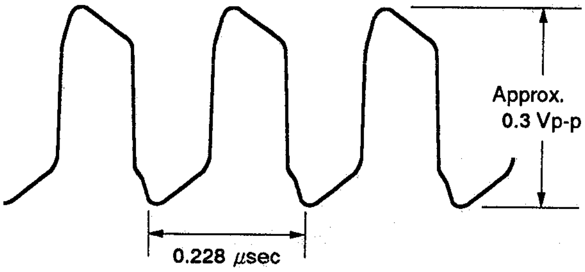


Fig. 10-17.

10-5-10. Y FM Deviation Adjustment (VA-68 Board)

Mode	Recording and playback
Signal	Color bar
Measurement Point	VIDEO IN/OUT terminal (J201)
Measuring Instrument	Oscilloscope
Adjusting Element	RV206
Specified Value	Playback level is 1.00 ± 0.05 Vp-p

Note: 1) Confirm that "Emphasis Y Level Adjustment", "PB Y Level Adjustment" and "Y FM Carrier Frequency Adjustment" have been completed.
2) Terminate VIDEO IN/OUT terminal (J201) at 75Ω.

Adjusting method:

1) Record the color bar signal.
2) Playback the recorded signal.
3) Confirm the playback output.
Specified value: 1.00 ± 0.05 Vp-p
4) If not meet the specified value, repeat 1) to 3) after turning RV206 in the following manner.

	Rotation direction of RV206
When larger than specified value	Clockwise (↻)
When smaller than specified value	Counterclockwise (↺)

Table 10-2.

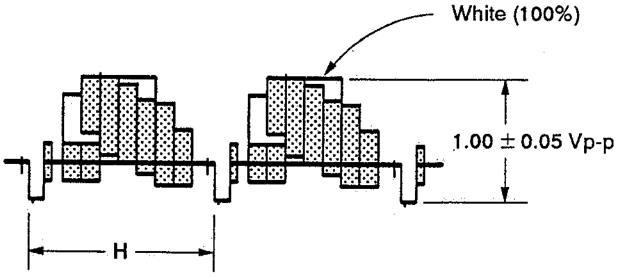


Fig. 10-18. Y FM deviation adjustment

10-5-11. Chroma Emphasis fo Adjustment (VA-68 Board)

Mode	Recording
Signal	Color bar
Measurement Point	Pin ㉔ of IC203
Measuring Instrument	Oscilloscope
Adjusting Element	FL302
Specified Value	Minimum fo component

Adjusting method:

1) Adjust FL302 so that the amplitude of flat red portion of the chroma signal becomes minimum.

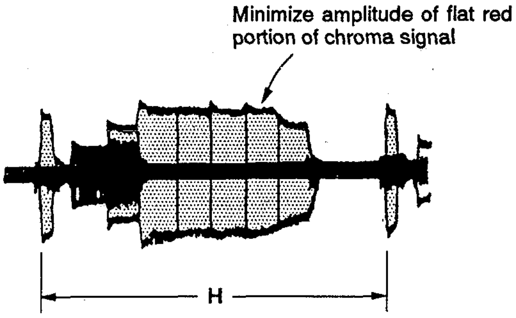

Minimize amplitude of flat red portion of chroma signal
H

Fig. 10-19. Chroma emphasis fo adjustment

10-5-12. REC C RF Level Adjustment (VA-68 Board)

Mode	Recording
Signal	Color bar
Measurement Point	Pin ① of CN507
Measuring Instrument	Oscilloscope
Adjusting Element	RV301
Specified Value	120 ± 10 mVp-p

Adjusting method:

1) Adjust RV301 so that the amplitude of flat red portion of the chroma signal becomes 120 ± 10 mVp-p.

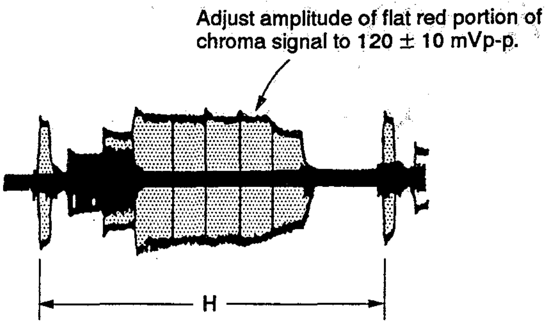

Adjust amplitude of flat red portion of chroma signal to 120 ± 10 mVp-p.
H

Fig. 10-20.

10-5-13. REC Y Level Adjustment (VA-68 Board)

Mode	Recording
Signal	No signal
Measurement Point	Pin ⑤ of CN507
Measuring Instrument	Oscilloscope 20 MHz BAND WIDTH LIMITER: ON
Adjusting Element	RV101
Specified Value	240 ± 10 mVp-p

Note: Be sure to use MP type tape.
(Pin ⑩ of CN507 should be "L".)

Adjusting method:

1) Adjust RV101 for 240 ± 10 mVp-p.

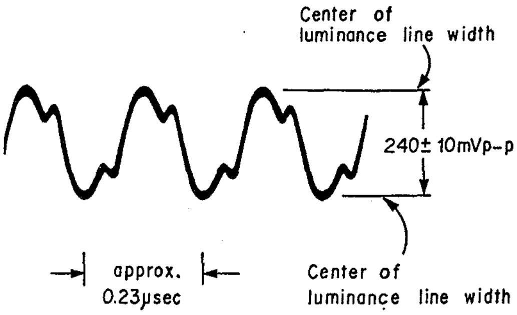

Center of luminance line width
240± 10mVp-p
approx. 0.23μsec
Center of luminance line width

Fig. 10-21.

10-5-14. REC ATF Level Checking (SS-136 Board)

Mode	Recording
Signal	No signal
Measurement Point	Pin ㉑ of CN501
Measuring Instrument	Oscilloscope
Specified Value	710 ± 90 mVp-p

Checking method:

1) Confirm that the REC ATF signal level is 710 ± 90 mVp-p.

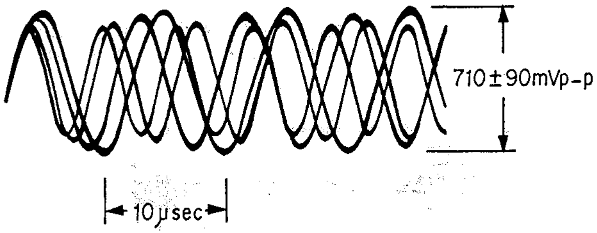


Fig. 10-22.

10-6. CHARACTER GENERATOR ADJUSTMENTS

Connect 20-pin extension cord between CN705 on the CT-39 board and CN703 on the VA-68 board.

10-6-1. Character Generator SG Frequency Adjustment (CT-39 Board)

Mode	E-E
Signal	Non-signal
Measurement Point	Pin ⑲ of IC902
Measuring Instrument	Frequency counter
Adjustment Element	CT902
Specified Value	15734 ± 100 Hz

Adjusting method:

1) Adjust to 15734 ± 100 Hz with CT902.

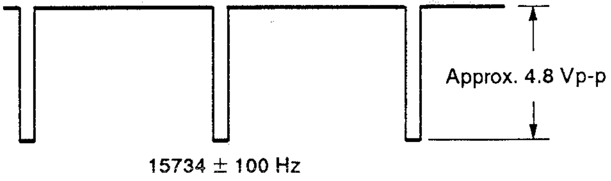


Fig. 10-23.

10-6-2. DDS Character Position Adjustment (CT-39 Board)

Mode	Playback
Signal	Alignment tape: For operation checking (WR5-5NSP) Color bar section
Measurement Point	Confirmed on monitor TV
Measuring Instrument	
Adjustment Element	CT901

Adjusting method:

1) Press DETA SCREEN button. and confirm that the tape counter is displayed on the monitor TV screen.
2) Adjust CT901 until the left inner contour of the number at right side of the tape counter indication is line up with the border line between the red and blue color bars.

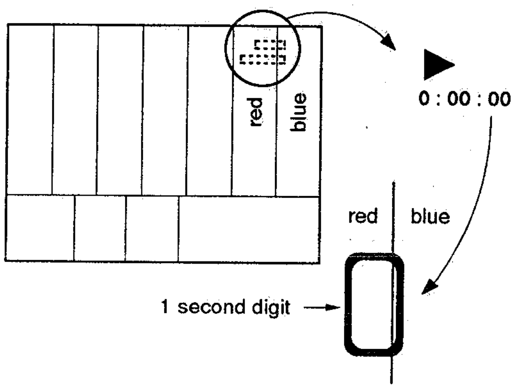


Fig. 10-24.

10-7. AUDIO SYSTEM ADJUSTMENTS

- Perform adjustment with the color bar signal used as the video input signal.

[Connection of audio measuring instruments]

In addition to the video system measuring instruments, connect the audio system measuring instruments as shown in the Fig. 10-25, and set the power switch to VTR position for adjustment. Set the IN/OUT select switch according to the mode as follows.

- IN position ·············Recording mode
- OUT position ·········Playback mode

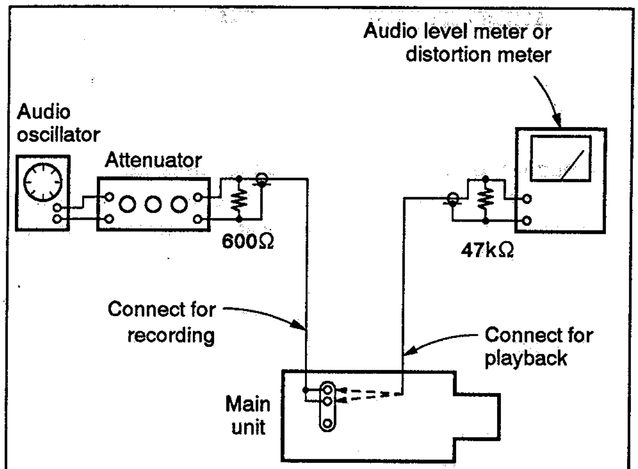
Unless otherwise specified, set the bilingual switch (S500 on the VA-68 board) to the following position.

- Green (stereo) position

Note: 1) Unless otherwise specified, input the same signal to both channel of L and R when input a audio signal.

2) Be sure to insert plug (shorting plug or dummy plug, etc.) into AUDIO IN/OUT R terminal. If not, the mode will be monaural and an appropriate adjustment can not be performed.
(Monaural mode)
When recording·······REC AFM RF 1.7 MHz carrier is not output.
REC matrix is off.

3) In adjustments which is performed for both R and L channels, the adjusting element for R channel is shown in brackets [ ].


Audio level meter or distortion meter
Audio oscillator
Attenuator
600Ω
47kΩ
Connect for recording
Connect for playback
Main unit

AUDIO IN/OUT terminal (VA-68 board J201)

When connecting input and output devices at the same time, set the IN/OUT select switch to the OUT position and connect the audio level meter or distortion meter to the AUDIO IN/OUT terminal.
For connection of the audio oscillator/attenuator, refer to the diagram below.

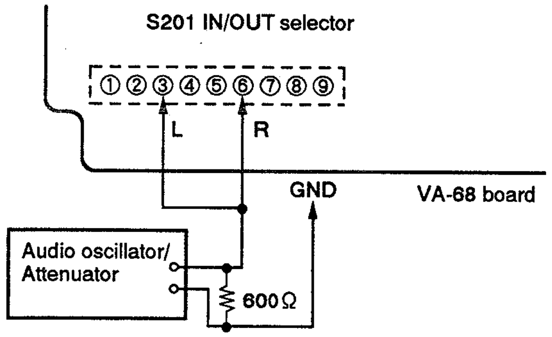

S201 IN/OUT selector
①②③④⑤⑥⑦⑧⑨
L
R
GND
VA-68 board
Audio oscillator/ Attenuator
600Ω

Fig. 10-25.

[Adjustment procedure]

1) IR adjustment
2) 1.5 MHz carrier frequency check
3) 1.7 MHz carrier frequency check
4) 1.5 MHz recording level adjustment
5) 1.7 MHz recording level adjustment
6) E-E output level check
7) REC matrix L–R adjustment
8) REC matrix L+R check
9) 1.5 MHz deviation adjustment
10) 1.7 MHz deviation adjustment
11) PB matrix adjustment
12) Overall level characteristics, separation check
13) Overall distortion check
14) Overall noise level check

10-7-1. IR Adjustment (VA-68 Board)

Mode	Playback
Signal	Alignment tape: for AFM stereo operation check (WR5-9NS) Bilingual (monoscope) section
Measurement Point	1. Pin ⑥ and ㊹ of IC400 2. Pin ⑥ and ㊹ of IC402
Measuring Instrument	Digital voltmeter
Adjustment Element	1. RV400 (1.5IR) 2. RV404 (1.7IR)
Specified Value	0 ± 10 mVdc

Adjusting method:

- 1.5 IR adjustment

1) Connect the digital voltmeter to Pin ㊹ of IC400 and read the DC voltage level. (Approx. 2100 mVdc)
2) Connect the digital voltmeter to Pin ⑥ of IC400.
3) Adjust RV400 so that the voltage level at Pin ⑥ of IC400 becomes the same as Pin ㊹ of IC400. (Tolerance level= ± 10 mVdc)

- 1.7 IR adjustment

4) Connect the digital voltmeter to Pin ㊹ of IC404 and read the DC voltage level. (Approx. 2100 mVdc)
5) Connect the digital voltmeter to Pin ⑥ of IC404.
6) Adjust RV404 so that the voltage level at Pin ⑥ of IC404 becomes the same as Pin ㊹ of IC404. (Tolerance level= ± 10 mVdc)

10-7-2. 1.5 MHz Carrier Frequency Check (VA-68 Board)

Mode	Recording
Signal	Non-signal
Measurement Point	Pin ⑧ of IC400
Measuring Instrument	Frequency counter
Specified Value	1.500 ± 0.002 MHz

Note: Use a 10:1 probe for connecting the frequency counter.

Checking method:

1) Confirm that the carrier frequency is 1.500 ± 0.002 MHz.

10-7-3. 1.7 MHz Carrier Frequency Check (VA-68 Board)

Mode	Recording
Signal	Non-signal
Measurement Point	Pin ⑧ of IC402
Measuring Instrument	Frequency counter
Specified Value	1.700 ± 0.002 MHz

Note: Use a 10:1 probe for connecting the frequency counter.

Checking method:

1) Confirm that the carrier frequency is 1.700 ± 0.002 MHz.

10-7-4. 1.5 MHz Recording Level Adjustment (VA-68 Board)

Mode	Recording
Signal	Non-signal
Measurement Point	Pin ② of CN507
Measuring Instrument	Oscilloscope
Adjustment Element	RV406
Specified Value	105 ± 10 mVp-p

Connections:

1) Connect Collector of Q413 and GND with a jumper wire.

Checking method:

1) Adjust RV406 so that the 1.5 MHz REC AFM RF signal level becames 105 ± 10 mVp-p.
   (Read the center level of the luminance line width.)

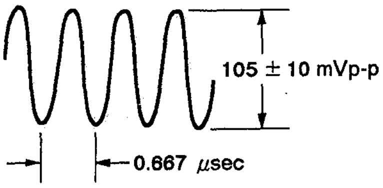


Fig. 10-26.

10-7-5. 1.7 MHz Recording Level Adjustment (VA-68 Board)

Mode	Recording
Signal	Non-signal
Measurement Point	Pin ② of CN507
Measuring Instrument	Oscilloscope
Adjustment Element	RV407
Specified Value	83 ± 10 mVp-p

Connections:

1) Connect Pin ⑧ of IC400 and GND with 0.01 μF capacitor.

Checking method:

1) Confirm that the shorting plug is inserted into AUDIO IN/OUT R (red) terminal.
2) Adjust RV407 so that the 1.7 MHz REC AFM RF signal level becames 83 ± 10 mVp-p. (Read the center level of the luminance line width.)

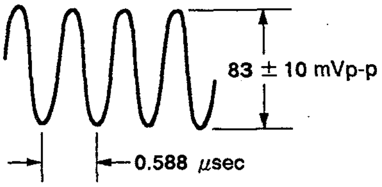


Fig. 10-27.

10-7-6. E-E Output Level Check (VA-68 Board)

Mode	Recording
Signal	400 Hz, –7.5dBs : Pin ③ and Pin ⑥ of S201 (AUDIO IN L and R)
Measurement Point	AUDIO IN/OUT L [R] terminal
Measuring Instrument	Audio level meter
Specified Value	–7.5 ± 2 dBs

Note: Insert a plug to AUDIO IN/OUT R terminal

Checking method:

1) Confirm that the 400 Hz signal level is –7.5 dBs.

10-7-7. REC Matrix L–R Adjustment (VA-68 Board)

Mode	Recording
Signal	400 Hz, –7.5dBs : Pin ③ and Pin ⑥ of S201 (AUDIO IN L and R)
Measurement Point	Pin ③ of IC401
Measuring Instrument	Oscilloscope
Adjusting Element	RV402
Specified Value	0 ± 5 mVp-p

Note: 1) Use a 1:1 probe.
2) Insert any plug to AUDIO IN/OUT R terminal.

Checking method:

1) Adjust RV402 so that the 400 Hz signal level is 0 ± 5 mVp-p.

10-7-8. REC Matrix L+R Check (VA-68 Board)

Mode	Recording
Signal	1. 400 Hz, –7.5 dBs: Pin ③ of S201 (AUDIO IN L) 2. 400 Hz, –7.5 dBs: Pin ⑥ of S201 (AUDIO IN R)
Measurement Point	Pin ㉕ of IC401
Measuring Instrument	Oscilloscope
Specified Value	The level difference between L input and R input is 0 ± 10 mVp-p.

Note: 1) When measuring signal level at Pin ㉕ of IC401, start measuring 1 minute after the signal input. (To stabilize AGC)
2) Insert any plug to AUDIO IN/OUT R terminal.

Checking method:

1) Input 400 Hz, –7.5 dBs signal only to Pin ③ of S201.
2) Read the signal level at Pin ㉕ of IC401 and make a note of it. (Approx. 200 mVp-p)
3) Input 400 Hz, –7.5 dBs signal only to Pin ⑥ of S201.
4) Confirm that the level at Pin ㉕ of IC401 is [the level measured in step 2] ± 10 mVp-p.

10-7-9. 1.5 MHz Deviation Adjustment (VA-68 Board)

Mode	Playback
Signal	Alignment tape: for operation check (WR5-5NSP)
Measurement Point	AUDIO IN/OUT terminal
Measuring Instrument	Oscilloscope
Adjusting Element	RV401 (1.5 DEV)
Specified Value	–7.5 ± 0.5 dBs

Switch setting:

- Bilingual switch (S400 on the VA-68 board)……Main

Adjusting method:

1) Adjust RV401 so that the 400 Hz signal level becomes –7.5 dBs.

10-7-10. 1.7 MHz Deviation Adjustment (VA-68 Board)

Mode	Playback
Signal	Alignment tape: for AFM stereo operation check (WR5-9NS) Bilingual (monoscope) section
Measurement Point	1. Pin ㉗ of IC401 2. Pin ① of IC401
Measuring Instrument	Oscilloscope
Adjusting Element	RV405 (1.7 DEV)
Specified Value	400 Hz level: 1 kHz level= 8 : (7.5 ± 0.05)

Adjusting method:

1) Connect the probe of oscilloscope to Pin ㉗ of IC401.
2) Adjust VOLT/DIV knob of the oscilloscope so that the signal level of 400 Hz becomes 8 division.
3) Disconnect the probe and connect to Pin ① of IC401.
4) Adjust RV405 so that the signal level of 1 kHz becomes 7.5 division.

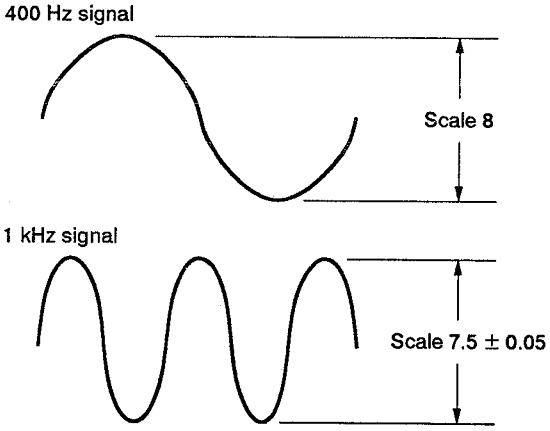


Fig. 10-28.

10-7-11. PB Matrix Adjustment (VA-68 Board)

1. PB Matrix L Adjustment

Mode	Self-recording/playback
Signal	Non signal: Pin ③ of S201 (AUDIO IN L) 400 Hz, –7.5 dBs: Pin ⑥ of S201 (AUDIO IN R)
Measurement Point	AUDIO IN/OUT L terminal
Measuring Instrument	Oscilloscope
Adjusting Element	RV403
Specified Value	400 Hz crosstalk signal level is 0 ± 10 mVp-p

Note: Insert any plug to AUDIO IN/OUT R terminal.

Adjusting method:

1) Input 400 Hz, –7.5 dBs audio signal only to Pin ⑥ of S201.
2) Record it.
3) Playback the recorded section.
4) Adjust with RV403 so that the 400 Hz crosstalk signal level becomes minimum.

2. PB Matrix R Adjustment

Mode	Self-recording/playback
Signal	400 Hz, –7.5 dBs: Pin ③ of S201 (AUDIO IN L) Non signal: Pin ⑥ of S201 (AUDIO IN R)
Measurement Point	AUDIO IN/OUT R terminal
Measuring Instrument	Oscilloscope
Specified Value	400 Hz crosstalk signal level is 0 ± 20 mVp-p

Note: Insert any plug to AUDIO IN/OUT R terminal.

Adjusting method:

1) Input 400 Hz, –7.5 dBs audio signal only to Pin ③ of S201.
2) Record it.
3) Playback the recorded section.
4) Confirm that the 400 Hz crosstalk signal level is 0 ± 20 mVp-p.

10-7-12. Overall Level Characteristics, Separation Check

Mode	Self-recording and playback
Signal	400 Hz, –7.5 dBs: AUDIO IN/OUT L [R] terminal Non-signal (insert a shorting plug): AUDIO IN/OUT R [L] terminal
Measurement Point	AUDIO IN/OUT R and L terminals
Measuring Instrument	Audio level meter
Specified Value	Signal level: –7.5 ± 2 dBs Crosstalk level: –27.5 dBs or less

Note: 1) Be sure to insert any plug into AUDIO IN/OUT R terminal when recording.
2) Confirm that the bilingual switch (S400 on the VA-68 board) is set on the green (stereo) position.

Checking method:
1) Record the signal.
2) Play back the recorded portion.
3) Confirm that the output level of AUDIO IN/OUT L[R] terminal is –7.5 ± 2 dBs.
4) Confirm that the output level of AUDIO IN/OUT R[L] terminal is –27.5 dBs or less.

10-7-13. Overall Distortion Check

Mode	Self-recording and playback
Signal	400 Hz, –7.5 dBs
Measurement Point	AUDIO IN/OUT L [R] terminal
Measuring Instrument	Distortion meter
Specified Value	0.8% or less *1

Checking method:
1) Record the signal.
2) Play back the recorded portion.
3) Confirm that the distortion is less than 0.8%. *1
   *1: Value when a distortion measuring filter (Fig. 10-29.) is used. Less than 1.0% when no filter is used.

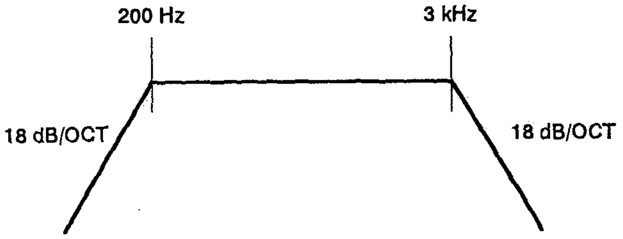


Fig. 10-29.

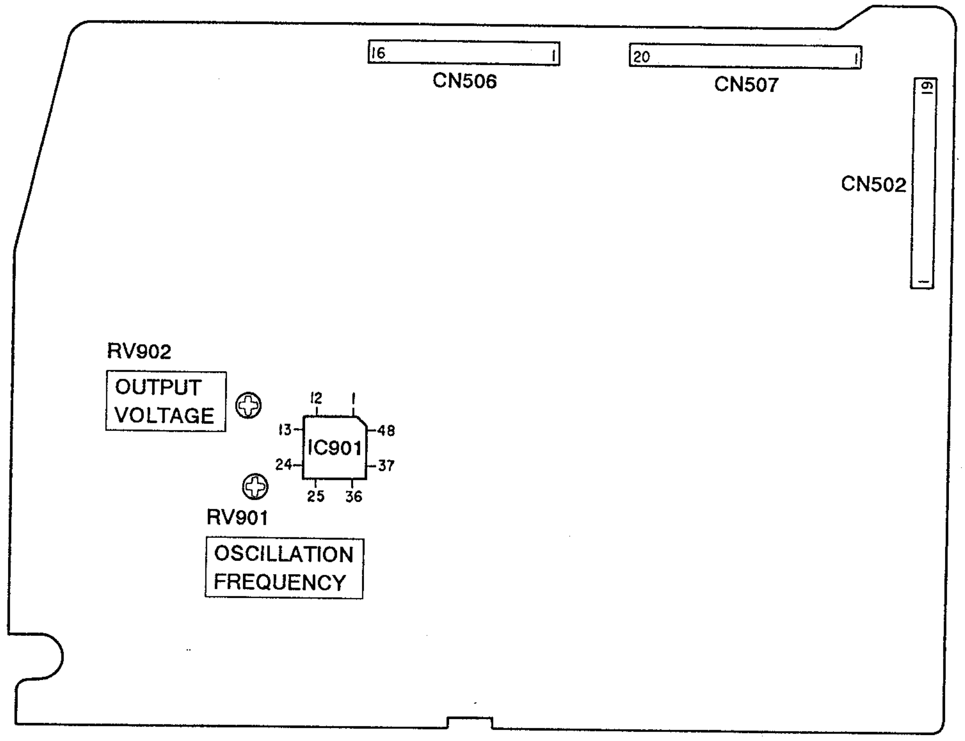
10-7-14. Overall Noise Level Check

Mode	Self-recording and playback
Signal	Non-signal (insert the shorting plugs into both AUDIO IN/OUT R and L terminals.)
Measurement Point	AUDIO IN/OUT L [R] terminal
Measuring Instrument	Audio level meter
Specified Value	Less than –61 dBs

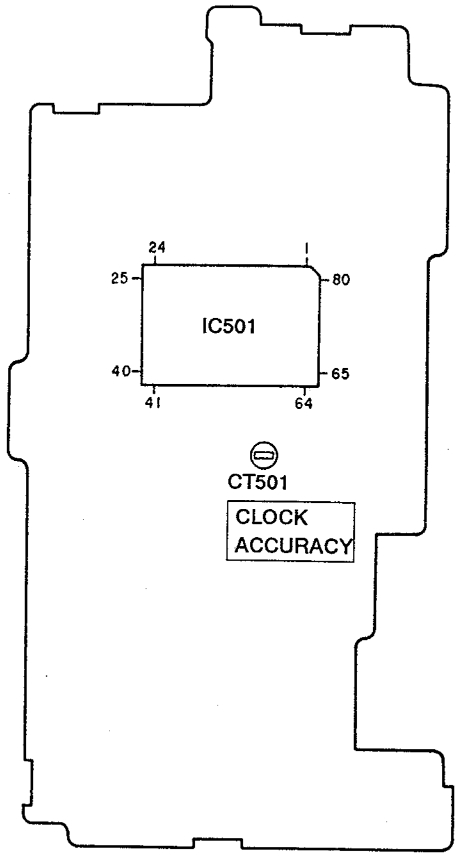
Checking method:
1) Record the signal
2) Play back the recorded portion.
3) Confirm that the noise level is less than –61 dBs. *1
   *1: Value when the A curve auditory correction filter is used.

10-8. ARRANGEMENT DIAGRAMS FOR ADJUSTMENT PARTS

SS-136 BOARD (COMPONENT SIDE)

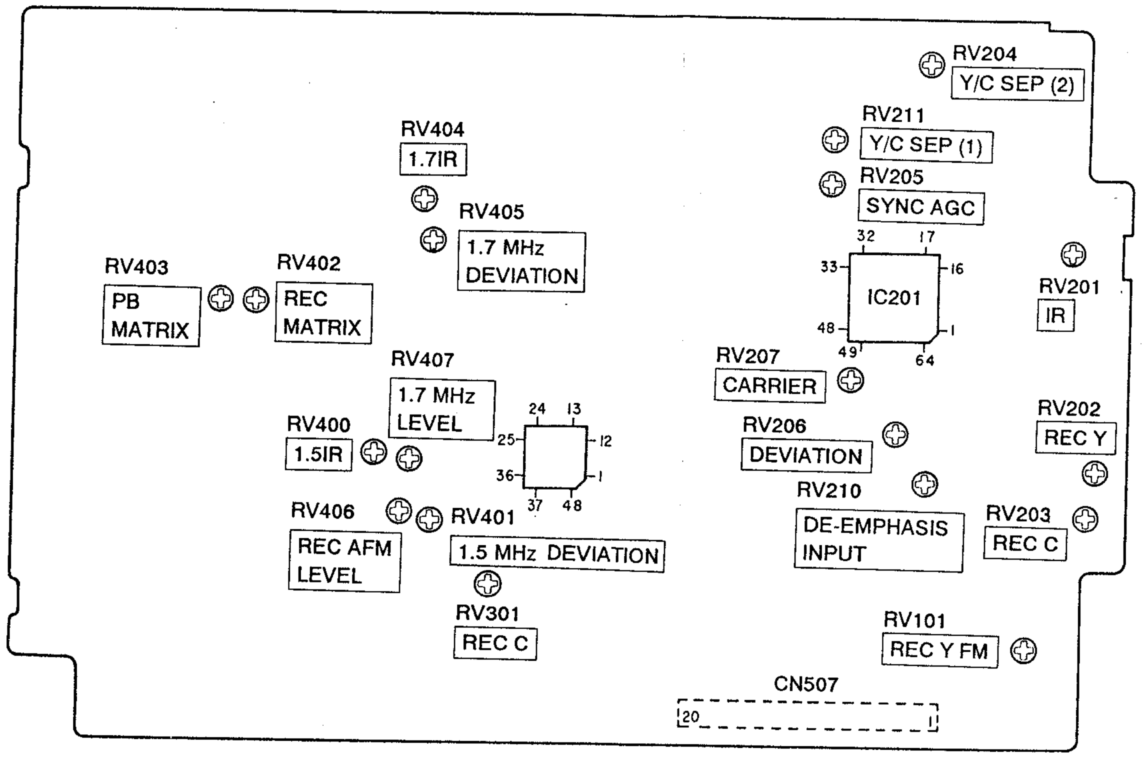

16
1
CN506
20
1
CN507
16
1
CN502
RV902
OUTPUT VOLTAGE
12
1
13
48
IC901
24
37
25
36
RV901
OSCILLATION FREQUENCY

FU-101 BOARD (COMPONENT SIDE)

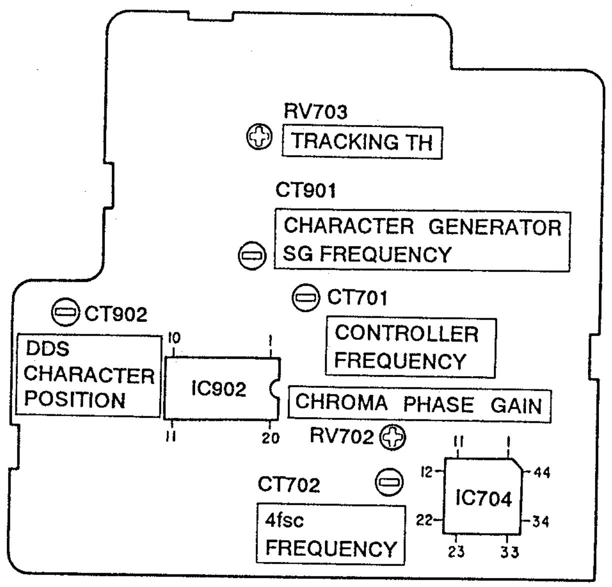

24
1
25
80
IC501
40
65
41
64
CT501
CLOCK ACCURACY

309

VA-68 BOARD (COMPONENT SIDE)


RV204
Y/C SEP (2)
RV211
Y/C SEP (1)
RV205
SYNC AGC
RV404
1.7IR
RV405
1.7 MHz DEVIATION
RV403
PB MATRIX
RV402
REC MATRIX
32
17
33
16
IC201
48
1
49
64
RV201
IR
RV407
1.7 MHz LEVEL
RV207
CARRIER
RV400
1.5IR
24
13
25
12
36
1
37
48
RV206
DEVIATION
RV202
REC Y
RV210
DE-EMPHASIS INPUT
RV406
REC AFM LEVEL
RV401
1.5 MHz DEVIATION
RV203
REC C
RV301
REC C
RV101
REC Y FM
CN507
20
1

CT-39 BOARD (COMPONENT SIDE)
(Also illustarated on page 278.)


RV703
TRACKING TH
CT901
CHARACTER GENERATOR SG FREQUENCY
CT701
CONTROLLER FREQUENCY
CT902
DDS CHARACTER POSITION
10
1
IC902
11
20
CHROMA PHASE GAIN
RV702
11
1
12
44
IC704
22
34
23
33
CT702
4fsc FREQUENCY